2010 Urban Water Management Plan

Prepared for
Carlsbad Municipal Water District
Carlsbad, CA
June 2011

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List of Abbreviations

ac-ft	acre-feet
ac-ft/yr	acre-feet per year
Act	Urban Water Management Planning Act
BMP	Best Management Practice
ccf	100 cubic feet
cfs	cubic feet per second
CII	Commercial, Industrial, and Institutional
CMWD	Carlsbad Municipal Water District
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
DWR	California Department of Water Resources
EWA	Encina Wastewater Authority
EWPCF	Encina Water Pollution Control Facility
Framework Agreement	Agreement Memorializing Certain Understandings and Establishing a Framework for Cooperation
gpcd	gallons per capita per day
gpd	gallons per day
gpf	gallons per flush
gpm	gallons per minute
MOU	Memorandum of Understanding
mgd	million gallons per day
mg/L	milligrams per liter
MWD	Metropolitan Water District of Southern California
NCWA	North County Water Agencies
Plan	Urban Water Management Plan
Poseidon	Poseidon Resources Corporation
SANDAG	San Diego Association of Governments
SB	Senate Bill
SDCWA	San Diego County Water Authority
TDS	total dissolved solids
UAW	unaccounted-for water use

Section 1

Introduction

This 2010 Urban Water Management Plan (Plan) addresses the Carlsbad Municipal Water District (CMWD) and includes descriptions of the water supply sources including recycled water, groundwater, surface water, water conservation activities, and projected water demands. The Plan presents a comparison of projected water supplies to water demands during normal, single-dry, and multiple-dry years.

This chapter provides an overview of the Act and descriptions of agency coordination, public participation, Plan adoption, resource maximization and import minimization, and Plan organization.

1.1 Urban Water Management Planning Act

This 2010 Plan has been prepared in accordance with the Urban Water Management Planning Act (Act), as amended, California Water Code Division 6, Part 2.6, Sections 10610 through 10657. The Act became part of the California Water Code with the passage of Assembly Bill 797 during the 1983–1984 regular session of the California legislature. The Act requires every urban water supplier that provides water for municipal purposes to more than 3,000 connections or supplying more than 3,000 acre-feet (ac-ft) of water annually to adopt and submit a plan every five years to the California Department of Water Resources (DWR). The Act was most recently amended in November 2009 with the adoption of Senate Bill (SB) X7-7. The most significant revision is the requirement for establishing per capita water use targets and an option to delay 2010 Plan adoption to July 1, 2011.

The Act states that these urban water suppliers should make every effort to assure the appropriate level of reliability in its water service is sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act describes the contents of the 2010 Plan as well as how urban water suppliers should adopt the Plan.

1.2 Agency Coordination

The Act requires CMWD to coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable. While preparing the Plan, CMWD attended workshops conducted by DWR to discuss the requirements of the Act and attended meetings with the San Diego County Water Authority (SDCWA), CMWD's wholesale water supplier. The SDCWA's 2010 Urban Water Management Plan should be consulted for details regarding CMWD's wholesale water supplies. CMWD also worked closely with the City of Carlsbad's Community & Economic Development Department in the preparation and review of Plan elements. Table 1-1 provides a summary of CMWD's coordination with the appropriate agencies.

In preparing the recycled water elements of this Plan, CMWD consulted with the agencies responsible for the existing and potential sources of recycled water, including the Vallecitos Water District, the Leucadia Wastewater District, and the Encina Wastewater Authority (EWA).

Table 1-1. Coordination with Appropriate Agencies					
Coordinating Agencies	Provided 60-day notice of public hearing	Was contacted for assistance	Was provided a copy of the draft Plan	Commented on the draft Plan	Attended public meeting
City of Carlsbad	X	X	X		
City of Encinitas	X		X		
Encina Wastewater Authority		X	X		
Leucadia Wastewater District		X	X		
MWD			X		
City of Oceanside	X		X		
County of San Diego	X		X		
San Diego Association of Governments	X	X	X		
SDCWA	X	X	X		
San Diego Local Area Formation Commission	X		X		
City of San Marcos	X		X		
Vallecitos Water District	X		X		
City of Vista	X		X		

DWR Table 1

1.3 Public Participation and Plan Adoption

CMWD encouraged community and public involvement in the Plan. CMWD held a public hearing on May 24, 2011, that provided an opportunity for CMWD's customers including social, cultural, and economic community groups to learn about the water supply situation and the plans to continue to provide a reliable water supply for the future. The hearing was an opportunity for people to ask questions regarding the current situation and the viability of future plans. The hearing also included a discussion of the per capita water use targets.

A 60-day notice of the public hearing was provided to San Diego County and adjacent cities and other entities on March 17, 2011. The notification list is included in Appendix A.

Public hearing notifications were published and copies of the 2010 Plan were made available for public review at the City of Carlsbad's Faraday Center, 1635 Faraday Avenue; at the Carlsbad City Libraries located at 1250 Carlsbad Village Drive and 1775 Dove Lane; at the Carlsbad City Clerk's Office, 1200 Carlsbad Village Drive, and on the City of Carlsbad's website at www.carlsbadca.gov two weeks before the public hearing. A copy of the published Notice of Public Hearing is included in Appendix A. This Plan was adopted by the Board of Directors on May 24, 2011. A copy of the adopted resolution is provided in Appendix B.

The 2010 Plan will be submitted to DWR, the California State Library, and San Diego County within 30 days after adoption. The Plan will be available for public review on the City of Carlsbad's web site within 30 days after filing a copy of the Plan with DWR. The CMWD shall implement the adopted Plan in accordance with the schedule described in this Plan.

1.4 Resources Maximization and Import Minimization

The minimization of imported water supplies and maximization of local water supplies continues to be a priority for CMWD. CMWD has increased the use of recycled water, planned for additional groundwater and surface water, implemented water conservation measures, and participated in the planning of a local seawater desalination project as steps to maximize the use of local water resources. Furthermore, CMWD has supported and helped fund efforts by the SDCWA to minimize dependency on imported water supplies.

CMWD is participating in the San Diego Integrated Regional Water Management Plan. By working to integrate water resources planning across jurisdictional boundaries, CMWD maximizes water resources. CMWD is also participating with eight agencies developing a regional recycled water supply and distribution system referred to as the "North San Diego County Regional Recycled Water Project". In the near term this regional project potentially could supply a demand of 16,554 ac-ft/yr. Coordination efforts are now in process to obtain funding oppurtunities for the regional project. For CMWD this would include Phase III of its recycled water master plan.

1.5 Plan Organization

Section 2 provides a description of the service area, climate, and water system. Section 3 presents historical and projected water use. Water supplies are described in Section 4. Section 5 addresses recycled water. Section 6 describes CMWD's water conservation efforts. Section 7 provides a comparison of future water supplies to demands. The appendices provide relevant supporting documents.

DWR has provided a checklist of the items that must be addressed in each Plan based upon the Act. This checklist makes it simple to identify exactly where in the Plan each item has been addressed. The checklist is completed for this Plan and provided in Appendix F. It references the sections and page numbers where the specific items can be found. The tables that are recommended by DWR are identified in this Plan with their applicable DWR table number using a footnote (DWR, 2011).

Section 2

Description of Existing Water System

This chapter describes CMWD's service area and water system. It contains descriptions of the service area, climate, and water system.

2.1 Description of Service Area

CMWD covers an area of 20,682 acres, approximately 32.32 square miles, and provides water services to most of the City of Carlsbad. CMWD's boundary, which defines the study area for this Plan, is shown on Figure 2-1. As shown in Figure 2-1, CMWD does not serve the entire City of Carlsbad.

Sanitary sewer collection service within the CMWD service area is provided by City of Carlsbad and Leucadia Wastewater District. Wastewater treatment is provided by the Encina Wastewater Authority (EWA) through the Encina Water Pollution Control Facility (EWPCF), located in Carlsbad.

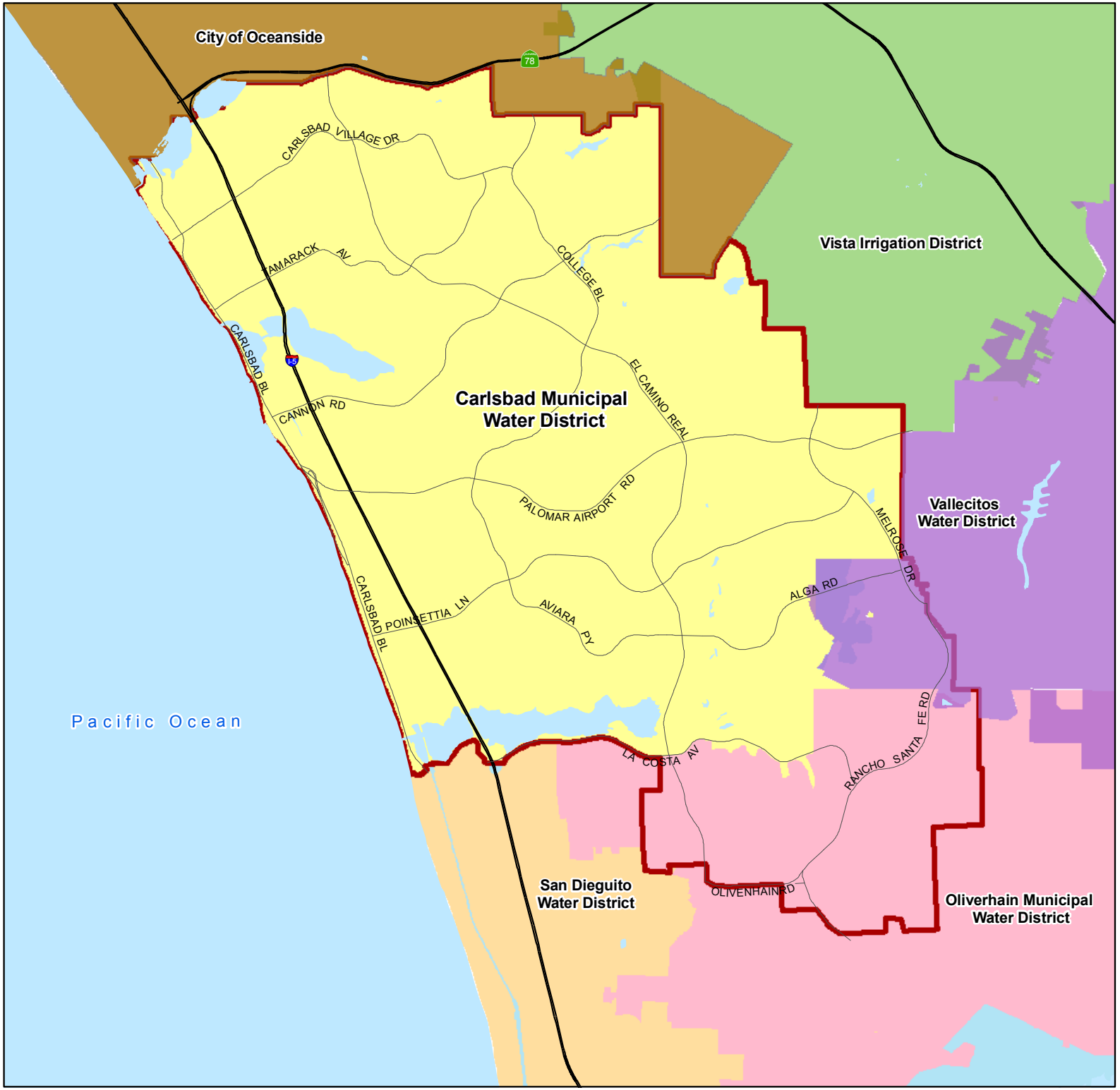
Carlsbad's housing stock composition consists of mostly single-family homes, with some multi-family homes, and a few mobile homes. Single-family residences generally contain larger landscaped areas, predominantly planted in turf, and require more water for outdoor application in comparison to other types of housing. The general characteristics of multi-family and mobile homes limit their outdoor landscaping and water use, although some condominium and apartment developments do contain green belt areas.

2.2 Description of Water System

CMWD currently receives all of its potable water supply from the SDCWA through four connections. Water is delivered through 440 miles of pipeline, 57 pressure regulating stations, five pump stations, ten storage tanks, and one reservoir. The total operational storage for CMWD is 245.5 million gallons (MG), which includes the 195 MG Maerkle Dam Reservoir.

2.3 Climate

Carlsbad's climate is characteristically Mediterranean with mild temperatures year round. This mild climate is derived equally from the warm ocean water being pulled north from Mexico and from its subtropical, semi-desert locale. The result is temperatures averaging 58 degrees in January and 73 degrees in July, with an average annual rainfall of about 10 inches.



LEGEND

Agency Boundaries for Water Service

- NONE
- Carlsbad Municipal Water District
- City of Oceanside
- Olivenhain Municipal Water District
- San Dieguito Water District
- Vallecitos Water District
- Vista Irrigation District
- Carlsbad City Limits

Other

- Freeway
- Major Roads
- Water Bodies

N

0 6,000

Feet

FIGURE 2-1
Study Area

Carlsbad Municipal Water District

2.4 Water System Background

Water demands for the area were initially supplied by the privately held Carlsbad Mutual Water Company and Terramar Water Company through the utilization of local groundwater and surface water supplies. The Carlsbad Mutual Water Company constructed nine wells in the Mission Basin of the San Luis Rey River, booster pumping stations, storage tanks, an earthen dam (Lake Calavera), and transmission facilities to supply residential, commercial and agricultural users. The Terramar Water Company constructed four wells located in Agua Hedionda Creek (referred to as the Cannon Well Field), a second connection to the Carlsbad Mutual Water Company's pipeline from Lake Calavera at El Camino Real, a reservoir, plus a distribution system to supply residential, commercial, and agricultural users.

The Carlsbad Mutual Water Company's groundwater wells began being developed prior to 1914 with rights to 2,382 acre-feet per year (ac-ft/yr). In addition, a license was obtained (terminable by the State Division of Water Rights, Department of Water Resources) for another 1,000 ac-ft/yr. A total of 9 wells were eventually constructed in the Mission Basin of the San Luis Rey River located in the City of Oceanside generally near the intersection of Mission Avenue and Fousat Road. Prior to 1942, local groundwater was the only developed source of water for the Carlsbad Mutual Water Company.

In September 1941, Carlsbad Mutual Water Company completed construction of an earthen dam (Calavera Dam), which captured local surface water runoff creating Lake Calavera. Lake Calavera also included a 2 million gallons per day (mgd) water filtration plant. A permit to divert 150 ac-ft/yr from Calavera Creek was obtained.

Beginning in 1950, four wells were constructed in an area referred to as the Cannon Well Field which is approximately the property where the Rancho Carlsbad Golf Course is located. The groundwater pumped from these wells was the original supply for the Terramar Water Company and has safe yield capacity estimated atf 400 ac-ft/yr. This groundwater was obtained from the Carlsbad hydrologic unit of the San Diego Region, a designation assigned by DWR. The four wells remain, but are in a state of disrepair and will need to eventually be removed and new replacement wells constructed.

The City of Carlsbad was incorporated in 1952, and the assets of the Carlsbad Mutual Water Company and Terramar Water Company were purchased by the City of Carlsbad in an agreement dated August 30, 1957. The City operated and maintained both water systems from 1958 to 1962.

CMWD was formed as a vehicle to bring imported water to the unincorporated areas surrounding the City of Carlsbad and to wholesale water to the newly formed City of Carlsbad. CMWD's first meeting was held on March 22, 1954, and CMWD became a member of the SDCWA that same year. CMWD began receiving imported water deliveries in 1955 through existing aqueduct connections located in the City of Escondido. CMWD constructed a pipeline in 1956 to convey imported water directly to the City of Carlsbad and unincorporated areas within CMWD's service area. In 1962, CMWD constructed Maerkle Dam (previously called Squires Dam) with a capacity of 600 ac-ft in the Agua Hedionda Basin. CMWD also obtained a permit for surface water rights tributary to Maerkle Dam in the amount of 25 ac-ft/yr.

As demands for water increased, seawater intrusion into the groundwater supply resulted in the gradual degradation of groundwater quality in the Mission Basin of San Luis Rey River. The total dissolved solids (TDS) content of the groundwater in the Mission Basin increased to the point where treatment would be required. At the sametime, lower-cost imported water became available through CMWD. As a result of the availability of this alternative supply of water, the City of Carlsbad ceased extracting groundwater and suspended use of local surface water supplies. The local surface water and groundwater supplies were suspended by the end of 1962 due to poor water quality and the ability to directly supply lower-cost imported water to customers. As a result, the water filtration plant at Lake Calavera was dismantled because of regulations requiring that surface waters be fully treated prior to introduction into a potable water system. The cost to construct facilities to treat the small amount of infrequently occurring surface water was determined to be much greater than the comparable cost of imported water. The Mission

Basin wells were beyond repair and subsequently removed by 2005 in accordance with California Department of Public Health requirements.

In an agreement dated May 25, 1983, the City of Carlsbad conveyed all of its functional water responsibilities for the provision of water service to CMWD including all the water facilities and groundwater and surface water rights purchased from Carlsbad Mutual Water Company and Terramar Water Company in 1957. This included all existing water facilities and responsibility for planning, financing, and construction of all major capital facilities necessary to provide potable water service within CMWD and portions of the City of Carlsbad not located in other retail water service agencies.

On January 1, 1990, the CMWD became a subsidiary district of the City of Carlsbad through an agreement between both agencies approved by the City Council on April 25, 1989. The Carlsbad City Council acting as CMWD's Board of Directors governs CMWD. CMWD's current water supplies consist of imported water from SDCWA, and recycled water that has been utilized as a supply source since 1993. The imported water is purchased by SDCWA from Metropolitan Water District (MWD) and is treated at MWD's Skinner Filtration Plant in Riverside County and SDCWA's Twin Oaks Water Treatment Plant in San Marcos, and conveyed to CMWD through SDCWA aqueducts.

Section 3

Historical and Projected Water Use

Water use and production records, combined with projections of population, employment, and urban development, provide the basis for estimating future water supply requirements. This chapter presents CMWD's current and projected population, customer connections, and water use, as well as the lower income household water use and per capita demand target.

3.1 Population

In order to be able to provide for CMWD 's future water demands and water use characteristics, it is important to have reasonable estimates of future population totals and future regional trends. The population projections presented in Table 3-1 were developed for CMWD's Water Master Plan that is currently in the process of being finalized.

Water use in CMWD's service area is closely linked to the local economy, population and weather. Over the last half century, a prosperous local economy has stimulated population growth, which in turn produced a relatively steady increase in water demand. However, fluctuating economic and weather conditions in the 1990s and lingering effects from the 1987-1992 drought resulted in deviations from historic demand patterns. By 1999, a new combination of natural population increases and job creation surfaced as the primary drivers of water consumption increases. The recession that started in 2008 brought an increase in unemployment and decrease in housing prices that has dampened population growth and water use. In addition, CMWD adopted a residential tiered water rate in July 2009 which further dampened demand by the residential population.

Table 3-1. Population-Current and Projected

Year	2010	2015	2020	2025	2030	2035	2040
Service Area Population	84,838	89,470	94,101	96,930	99,759	101,402	103,044

DWR Table 2

Source: SANDAG data provided by CMWD.

3.2 Projected Water Demands

Water use consists of water used by CMWD, water sold to others, and additional water uses and losses. Tables 3-2 to 3-6 present the current and projected potable water sales and number of connections by customer sector for calendar years 2005, 2010, 2015, 2020, 2025, 2030, and 2035. CMWD's demand projections presented in this section meet CMWD's gallons per capita per day (gpcd) demand targets that are described in Section 3.3.

This section describes the categories of water use and presents the projected water demands by customer category, water sales to others, other water uses and losses, low income water use and total water use.

3.2.1 Residential Water Use

Residential water use represents the largest water use category for CMWD and includes both single-family and multi-family categories. Residential water consumption is composed of both indoor and outdoor uses. Indoor water use includes sanitation, bathing, laundry, cooking and drinking. Most outdoor water use is to meet landscaping irrigation requirements. Other minor outdoor uses include car washing, surface cleaning, and similar activities.

3.2.2 Commercial/Industrial/Institutional Water Use

Commercial water demands consists of generally incidental uses necessary for the operation of a business or institution, such as drinking, sanitation and landscape irrigation. Major commercial water users include service industries such a restaurants, car washes, laundries and hotels. Statistics indicate that almost 60 percent of Carlsbad's employment base is in the commercial sector.

Industrial water consumption consists of a wide range of uses, including product processing and small-scale equipment cooling, sanitation and air conditioning. Water-intensive industrial uses in Carlsbad, such as electronics manufacturing and biotech research, typically require smaller amounts of water when compared to other water-intensive industries found elsewhere in Southern California, such as petroleum refineries, chemical processors, and canneries.

Institutional water use consists primarily of schools and churches within the service area. Water use characteristics tend to be similar to commercial uses but based on average daily attendance. Outdoor use also tends to be somewhat higher for landscaped areas and ball fields. However, many of these areas tend to be metered separately and categorized as irrigation.

The tourism industry in Carlsbad affects water usage by not only the number of visitors, but also through the expansion of service industries and attractions, which tend to be larger outdoor water users. Tourism is primarily concentrated in the summer months and affects seasonal demand and peaking. Population forecasts do not specifically account for tourism, but tourism is reflected in the economic forecasts and causes per capita use to increase.

3.2.3 Agricultural Water Use

Agricultural water use has been decreasing in Carlsbad for the last two decades to where it represents a very small portion of CMWD's water demand. For example, in 1991 CMWD sold 1,744 ac-ft to agriculture. By 2000, the agriculture consumption had declined to 1,204 ac-ft and for 2010 the consumption reduced to 420 ac-ft. This sector experiences wide seasonal fluctuations due to weather conditions and timing of the growing seasons, and consists primarily of commercial strawberry and flower fields, and wholesale nursery operations.

3.2.4 Irrigation Sector

The effects of seasonal differences will have an obvious influence on irrigation demands. Just behind commercial water use, irrigation is the third largest water use in CMWD's service area. Development within the City of Carlsbad over the last decade and a half has brought about the creation of a large amount of irrigated areas with various uses, including medians, slopes and parkways.

The City of Carlsbad adopted a Landscape Manual in November 1990 to assist development applicants and landscape architects in understanding the City's policies toward landscaping. Specifically, the manual requires that irrigation systems be designed to provide the optimum amount of water for plant growth without causing soil erosion or runoff. At the same time, the document requires that landscape design will include water conservation and alternative (non-potable) water sources as primary criteria. A revised landscape manual is now in preparation and is expected to be completed in 2011. In May 2010 the City of Carlsbad adopted a Water Efficient Landscape Ordinance in accordance with the water

Conservation in Landscaping Act of 2006 (Assembly Bill 1881). This promotes consistency in landscape regulations among land use authorities throughout San Diego County. The regulations reflect improvements for landscape and irrigation design plans, irrigation technologies, and water management for achievable water savings.

Table 3-2. Potable Water Deliveries, Actual 2005

Potable Water Use Sector	2005				
	Metered		Unmetered		Total Volume (ac-ft/yr)
	# Accounts	Volume (ac-ft/yr)	# Accounts	Volume (ac-ft/yr)	
Single family	22,159	9,009	0	0	9,009
Multi-family	1,005	1,963	0	0	1,963
Commercial/Industrial	2,175	3,695	0	0	3,695
Institutional/Governmental	69	162	0	0	162
Landscape Irrigation	1,115	4,214	0	0	4,214
Agriculture	39	716	0	0	716
Other	0	0	0	0	0
Total	26,562	19,759	0	0	19,759

DWR Table 3
Source: CMWD

Table 3-3. Potable Water Deliveries, Actual 2010

Water Use Sector	2010				
	Metered		Unmetered		Total Volume (ac-ft/yr)
	# Accounts	Volume (ac-ft/yr)	# Accounts	Volume (ac-ft/yr)	
Single family	23,080	7,965	0	0	7,965
Multi-family	1,016	1,769	0	0	1,769
Commercial/Industrial	2,363	2,868	0	0	2,868
Institutional/Governmental	73	122	0	0	122
Landscape Irrigation	909	1,932	0	0	1,932
Agriculture	38	420	0	0	420
Other	0	0	0	0	0
Total	27,479	15,076	0	0	15,076

DWR Table 4
Source: CMWD

Table 3-4. Potable Water Deliveries, Projected 2015

Water Use Sector	2015				
	Metered		Unmetered		Total Volume (ac-ft/yr)
	# Accounts	Volume (ac-ft/yr)	# Accounts	Volume (ac-ft/yr)	
Single family	23,328	9,740	0	0	9,740
Multi-family	1,521	3,219	0	0	3,219
Commercial/Industrial	2,388	3,700	0	0	3,700
Institutional/Governmental	80	200	0	0	200
Landscape Irrigation	900	3,000	0	0	3,000
Agriculture	35	422	0	0	422
Other	0	0	0	0	0
Total	28,252	20,281	0	0	20,281

DWR Table 5

Table 3-5. Potable Water Deliveries, Projected 2020

Water Use Sector	2020				
	Metered		Unmetered		Total Volume (ac-ft/yr)
	# Accounts	Volume (ac-ft/yr)	# Accounts	Volume (ac-ft/yr)	
Single family	23,585	9,279	0	0	9,279
Multi-family	2,159	4,285	0	0	4,285
Commercial/Industrial	2,400	3,887	0	0	3,887
Institutional/Governmental	80	122	0	0	122
Landscape Irrigation	800	2,656	0	0	2,656
Agriculture	30	300	0	0	300
Other	0	0	0	0	0
Total	29,054	20,529	0	0	20,529

DWR Table 6

Table 3-6. Potable Water Deliveries, Projected 2025, 2030, and 2035						
Water Use Sector	2025		2030		2035	
	Metered		Metered		Metered	
	# Accounts	Volume (ac-ft/yr)	# Accounts	Volume (ac-ft/yr)	# Accounts	Volume (ac-ft/yr)
Single family	23,809	9,367	24,381	9,592	24,654	9,699
Multi-family	2,666	5,292	3,327	6,604	3,736	7,416
Commercial/Industrial	2,500	4,369	2,600	4,296	2,700	4,235
Institutional/Governmental	80	122	80	122	80	122
Landscape irrigation	600	1,797	400	1,000	300	500
Agriculture	20	200	15	150	15	150
Other	0	0	0	0	0	0
Total	29,675	21,147	30,803	21,764	31,485	22,122

DWR Table 7

3.2.5 Water Sold to Other Agencies and Additional Water Uses and Losses

Table 3-7 provides the potable water sold to other agencies. CMWD does not anticipate selling potable water to other agencies. In 2010, CMWD sold 75 ac-ft of recycled water through nine meters (customers) within the Vallecitos Water District, which were located within the City of Carlsbad.

Table 3-7. Potable Water Sales to Other Water Agencies, ac-ft/yr							
Water Distributed	2005	2010	2015	2020	2025	2030	2035
None	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

DWR Table 9

System losses or unaccounted-for water use (UAW) is unmetered water use such as for fire protection and training, water system flushing, sewer cleaning, system leaks, unauthorized connections, reservoir cleaning, and other municipal uses. Unaccounted-for water can also result from meter inaccuracies. The actual and projected water demand for other uses including recycled water and system losses (unaccounted-for water) are shown in Table 3-8.

Recycled water is used by irrigation customers to water golf courses, median strips and other landscaped areas. Overall, recycled water use represents 16 percent of total water use in the CMWD's service area. Recycled water use tends to be lower in the winter months because of less irrigation demand for landscape.

Discussions are taking place considering the potential sale of recycled water in the amounts of 687 ac-ft/yr to Olivenhain Municipal Water District, 1,158 ac-ft/yr to Vista Irrigation District, 255 ac-ft/yr to the City of Oceanside, and 557 ac-ft/yr to the Vallecitos Water District.

Table 3-8. Additional Water Uses and Losses, ac-ft/yr							
Water Used	2005	2010	2015	2020	2025	2030	2035
Saline barriers	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0
Recycled water	1,966	3,517	5,000	6,500	6,500	6,500	6,500
System losses	1,373	1,094	1,067	1,080	1,113	1,145	1,164
Other (define)	0	0	0	0	0	0	0
Total	3,339	4,611	6,067	7,580	7,613	7,645	7,664

DWR Table 10

3.2.6 Projected Total Water Use and Demand Projection Provided to Wholesaler

Table 3-9 provides a summary of the total projected water use for CMWD including retail water deliveries and additional water uses and losses. The SDCWA is projecting higher demands in dry years (SDCWA, 2011). CMWD's water demands would be higher in dry years similar in proportion to the SDCWA projection.

Table 3-9. Total Water Use, ac-ft/yr							
Water Use	2005	2010	2015	2020	2025	2030	2035
Total water deliveries (from DWR Tables 3 to 7)	19,759	15,076	20,281	20,529	21,147	21,764	22,122
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	3,339	4,611	6,067	7,580	7,613	7,645	7,664
Total	23,098	19,687	26,348	28,109	28,760	29,409	29,786

DWR Table 11

SDCWA currently provides 100 percent of the potable water distributed by CMWD. Table 3-10 provides the projected amount of water that CMWD expects to purchase from SDCWA to meet water demands in the future. CMWD's projections of future wholesale water that will be supplied by the SDCWA do not exactly match up with the projections developed by SDCWA in their 2010 Plan, but are relatively similar. These differences are a result of different methodologoes and assumptions used to develop the water demand projections.

Table 3-10. CMWD Demand Projections Provided to Wholesale Suppliers, ac-ft/yr							
Wholesaler	Contracted Volume	2010 (actual)	2015	2020	2025	2030	2035
SDCWA	[a]	16,170	21,348	21,610	22,260	22,909	23,286

DWR Table 12

[a] The SDCWA does not define contract volumes.

3.2.7 Water Demands for Lower Income Households

Table 3-11 presents the projected low income water demands. The residential water demands presented in Tables 3-2 to 3-6 include the water demands of low income housing as required by Senate Bill (SB) 1087.

Table 3-11. Low-Income Projected Water Demands, ac-ft/yr					
Low Income Water Demands	2015	2020	2025	2030	2035
Single-family residential	3,117	3,153	3,016	2,935	3,162
Multi-family residential	1,030	1,456	1,704	2,021	2,418
Total	4,147	4,609	4,720	4,956	5,579

DWR Table 8

Note: Based on projected number of households with less than 80% of median household income per SANDAG 2050 Regional Growth Forecast, February 2010.

3.3 Per Capita Water Use Target

The Water Conservation Act of 2009 was signed into law in November 2009 as part of a comprehensive water legislation package. Known as SBX7-7, the legislation sets a goal of achieving a 20 percent reduction in urban per capita water use statewide by 2020. DWR developed technical methodologies to guide the consistent development by urban water suppliers of their baseline per capita water use and targets.

SBX7-7 requires urban water suppliers to establish per capita water use targets by using one of four methods:

- Method 1: A per capita water use by 2020 that is eighty percent of the urban retail water supplier's baseline per capita daily water use using a 10-year average starting no earlier than 1995. Since CMWD's recycled water is greater than 10 percent of 2008 retail water delivery as shown in Table 3-12, a 10 to 15-year baseline period can be used that ends no later than December 31, 2004. A 15-year period from 1990 to 2004 provides a baseline of 256.6 gpcd, as shown in Table 3-13. The resulting per capita demand target for 2020 is 205.3 gallons per capita per day (gpcd), with an interim 2015 target of 231 gpcd. No adjustment is required since the 15-year baseline target is less than 95 percent of the 5-year baseline, as shown in Table 3-14.
- Method 2: The per capita daily water use that is estimated using the sum of several defined performance standards. This method requires quantifying the landscaped area and the baseline commercial, industrial, and institutional (CII) use.
- Method 3: Ninety-five percent of the applicable state hydrologic region target, as set forth in the DWR Guidebook (DWR, 2011). CMWD, located in DWR's South Coast Hydrologic Region Number 4, has a year 2020 target of 95% of 149 gpcd, which is 142 gpcd.

- Method 4: A provisional method that was developed by DWR where the target is based on indoor residential, CII, outdoor, and water loss components. Using the Provisional Method 4 Target Calculator provided by DWR with a CII water use in 1997 of 3,241 ac-ft gives a target of 207.1 gpcd.

An urban water supplier must select one of the methods to set their per capita water use target. Water suppliers may choose to change the selected method until 2015. CMWD has selected Method 4 for establishing the 2020 per capita water use target of 207 gpcd.

Since 2007, CMWD's per capita water use has been experiencing a decline partially due to increased retail water cost, increasing use of water conservation measures by customers responding to drought conditions, and poor economic conditions. As shown in Table 3-13, the CMWD's per capita water use in 2010 was already below the 2020 target. However, this 2010 level of water use may be temporary and a partial rebound to prior per capita water use levels may occur. Recent decisions may increase demand. For example, in Apil 2011 the Governor of California terminated the State's drought proclamation. This was followed by the MWD Board which teminated implementation of their 2010/11 Water Supply Allocation Plan Level 2 allocation and reaffirming Baseline Water Use Efficiency Condition for their region on April 12, 2011.

CMWD's approach to meeting the 2020 per capita water use target has several elements consisting of increased saturation into the customer base of low flow plumbing devices and fixtures, continued implementation of demand management measures, the water use reductions that occur with the increased costs of water, and the increased use of recycled water. Recycled water is excluded from gross water use in determining per capita water use according to the DWR guidance. CMWD's water conservation efforts are described in Section 6.

Table 3-12. Base Period Ranges

Base	Base Period Ranges		
	Parameter	Value	Units
10- to 15-year Base Period	Calendar year 2008 total water deliveries (including recycled water)	24,460	ac-ft/yr
	2008 total volume of delivered recycled water	3,877	ac-ft/yr
	2008 recycled water as a percent of total deliveries	15.9	percent
	Number of years in base period	15	
	Year beginning base period range	1990	
	Year ending base period range	2004	
5-year Base Period	Number of years in base period	5	
	Year beginning base period range	2003	
	Year ending base period range	2007	

DWR Table 13

Table 3-13. Base Daily per Capita Water Use – 10- to 15-year Range				
Base Period Year		Distribution System Population	Daily System Gross Water Use (ac-ft/yr)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Fiscal Year Ending			
Year 1	1990	50,764	17,919	315
Year 2	1991	51,730	16,450	284
Year 3	1992	52,715	13,753	233
Year 4	1993	53,718	14,928	248
Year 5	1994	54,741	14,963	244
Year 6	1995	55,783	14,008	224
Year 7	1996	56,845	15,140	238
Year 8	1997	57,927	16,011	247
Year 9	1998	59,030	15,449	234
Year 10	1999	60,154	17,313	257
Year 11	2000	61,304	19,952	291
Year 12	2001	65,202	18,884	259
Year 13	2002	69,174	20,586	266
Year 14	2003	71,415	20,278	253
Year 15	2004	73,393	21,222	258
Year 16	2005	75,419	20,163	239
Year 17	2006	78,749	21,206	240
Year 18	2007	80,951	22,099	244
Year 19	2008	82,433	21,187	229
Year 20	2009	83,469	19,867	212
Year 21	2010	84,838	17,142	180
Base Daily Per Capita Water Use				15-yr 1990-2004: 256.6 gpcd 0.8X256.6=205.3 gpcd

DWR Table 14

Source: Gross water use from SDCWA billing analysis provided by CMWD.

Table 3-14. Base Daily per Capita Water Use - 5-year Range				
Base Period Year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Fiscal Year Ending			
Year 1	2003	71,415	20,278	253
Year 2	2004	73,393	21,222	258
Year 3	2005	75,419	20,163	239
Year 4	2006	78,749	21,206	240
Year 5	2007	80,951	22,099	244
Base Daily Per Capita Water Use				246.9 247X0.95=234.5

DWR Table 15

Section 4
Water Supplies

This chapter discusses CMWD's sources of water supply, the quality of the supply, new supply opportunities, exchanges and transfers of water, and water supply reliability.

4.1 Wholesale Water

CMWD imports all of its potable water from the SDCWA, which, in turn, purchases water from the MWD. The imported water is conveyed into the area via MWD and SDCWA facilities. Upon its formation in 1954, CMWD joined the SDCWA to acquire the right to purchase and distribute imported water throughout its service area. The SDCWA has 24 member agencies, including CMWD, and is the regional wholesaler of imported water in San Diego County.

4.1.1 MWD of Southern California

The MWD was created in 1928 following the passage of the Metropolitan Water District Act by the California Legislature to provide supplemental water for cities and communities on the south coastal plain of California. The MWD has 26 member agencies including the SDCWA, and covers an area which includes all, or portions, of Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties.

MWD serves as a water wholesaler, and provides water to its member agencies from both the Colorado River and the State Water Project. MWD's water supplies and management programs are discussed in their 2010 Regional Urban Water Management Plan.

4.1.2 San Diego County Water Authority

The SDCWA was organized on June 9, 1944 under the County Water Authority Act for the express purpose of importing Colorado River Water into San Diego County. The SDCWA annexed to MWD in 1946 and is now represented on the MWD Board by four directors, as its largest customer. SDCWA purchases water from MWD and other sources for resale to its 24 member agencies.

CMWD is one of 24 member agencies of the SDCWA. Each member agency is autonomous and is represented on the Board of Directors, setting local policies and water pricing structures. The representatives on the Board of Directors are appointed by each member agency and the number of representatives for each agency is based on a ratio of each member's assessed valuation compared to the total of all member agencies. CMWD presently has 2 Board members on the 36-member Board of Directors.

Member agency status entitles CMWD to directly purchase water from SDCWA on a wholesale basis. CMWD also looks to the SDCWA to insure, to the best of its ability, that adequate amounts of imported water will be available to satisfy future potable water requirements.

SDCWA's water supplies and management programs are discussed in their 2010 Urban Water Management Plan. Table 4-1 presents the wholesale water supplies that CMWD projects it needs.

Table 4-1. Wholesale Supplies-Existing and Planned Sources of Water (ac-ft/yr)							
Wholesaler sources	Contracted Volume	2010 (actual)	2015	2020	2025	2030	2035
SDCWA	[a]	**16,170**	**21,348**	**21,610**	**22,260**	**22,909**	**23,286**

DWR Table 17

[a] *The SDCWA does not define contract volumes*

4.2 Local Surface Water and Groundwater Supplies

CMWD currently does not use any local groundwater and surface water supplies, although in the past both types of water sources have been used. Prior to 1957, the Carlsbad Mutual Water Company supplied local surface water from Lake Calavera and groundwater from the Mission Basin to the City of Carlsbad. In August 1957, the water rights and other assets of the Carlsbad Mutual Water Company were purchased by the City of Carlsbad. In May 1983, through an agreement, these local surface water and groundwater rights were transferred to CMWD by the City of Carlsbad. This included rights to Mission Basin of the San Luis Rey River Valley of 5 cubic feet per second (cfs) (to 2,382 ac-ft) of groundwater, pre-1914 appropriative rights, and an additional 750 ac-ft/yr, up to 5 cfs, that was permitted in 1938. The Carlsbad Mutual Water Company held a license with the State Division of Water Rights for another 1,000 ac-ft annually. Additionally, there were surface water rights for 150 ac-ft annually which were held from Calavera Creek. The original license was for irrigation purposes and was later changed to recreational and fire protection purposes. CMWD obtained a permit for surface water in the amount of 25 ac-ft from Agua Hedionda Creek.

Table 4-2 identifies the groundwater basins in the vicinity of CMWD according to DWR Bulletin 118. The Batiquitos Lagoon Valley Groundwater Basin is the only basin located in CMWD's service area. The San Luis Rey Valley Groundwater Basin is located north of CMWD and the San Marcos Valley Groundwater Basin is located east of CMWD. DWR does not identify any of these groundwater basins as being in overdraft.

Other groundwater basins that could be potential sources of groundwater include Buena Vista Creek Basin, Agua Hedionda Creek Basin, Encinas Creek Basin, and the Batiquitos Hydrologic Subarea. These resources have low potential yields, poor quality, or no available data to substantiate their long term use in the public water supply. Generally speaking, these basins do not have geological characteristics or size comparable to Mission Basin of the San Luis Rey River. Collectively, these groundwater basins could supply only a small portion of CMWD's needs.

Of the groundwater basins available to CMWD, the Mission Basin of the San Luis Rey River has the most potential for a viable water resource. This basin has a large drainage area of 565 square miles and consists of alluvium and river channel deposits averaging 150 feet in depth. The quality is mildly brackish with TDS concentrations ranging from 1,000 to 1,500 milligrams per liter (mg/L). For CMWD's use, the water would need to be treated by a low pressure membrane, reverse osmosis process to achieve treated water quality in the range of 500 mg/L. The City of Oceanside is currently doing this at their Mission Basin Desalting Facility.

The Agua Hedionda subunit (Calavera Well Field) could be considered having a potential available yield of 400 ac-ft/yr. Histrorical well production records by the City of Carlsbad reported the following:

1958 – 1959 = 123 ac-ft/yr

1959 -1960 = 128 ac-ft/yr

1960 – 1961 = 238 ac-ft/yr

1961 – 1962 = 16 ac-ft/yr

In 2005, CMWD completed a study on the cost effectiveness of utilizing the groundwater from the Mission Basin. This study showed that while the treatment and delivery of groundwater is feasible, it was not cost effective for CMWD at the time of the study. As a result, CMWD's Board approved staff recommendation to discontinue efforts to utilize this groundwater source as an alternate local supply at that time. However, since 2005, improvements in technology may have resulted in lower costs for removing TDS, and these costs may continue to decrease over time. In addition, the cost of imported water has increased significantly since 2005 and this trend is projected by both MWD and SDCWA to continue over time. With the increasing cost and decreasing reliability of imported water, the cost effectiveness of using local groundwater once again has become attractive. A groundwater supply from the Mission Basin would require the construction of several wells, a groundwater treatment facility, and a conveyance system. Wheeling the treated groundwater through the Oceanside distribution system may be an option. Accordingly, CMWD currently is reevaluating its plans for utilization of groundwater in the Mission Basin, which may become cost effective, for the CMWD or third parties, as technology continues to improve and imported water costs continue to increase.

In 1991, a study was completed of the Agua Hedionda subunit where the Cannon Well Field is located. This study indicated that by a 1964 agreement the CMWD is allowed to drill any new well within the Cannon Well Field and take or remove all water developed on the property and deliver it to such place or places off of the property in CMWD's sole discretion, may determine. However, there are no recorded groundwater rights. The safe yield was estimated at 400 ac-ft/yr. The CMWD could begin the process for a formal application for groundwater. The Rancho Carlsbad Mobile Home Park does have one operating well in the vicinity, estimated at 100 ac-ft/yr, which they use to supply water for irrigation of their landscaping and through a separate agreement supply water to the adjacent Rancho Carlsbad Golf Course. Ultimately, if there is excessive pumping, there may be adverse effects, such as the elimination of surface flow in Agua Hedionda Creek, reduction in the wetland area downstream of the El Camino Real bridge, and increased salinity in the transition zone of fresh water to salt water in the Agua Hedionda Lagoon. These problems can be addressed if the Cannon Well Field is developed by CMWD through a program of scheduled observations and a monitoring program.

Table 4-2. DWR Groundwater Basins

Basin name	DWR Basin Number
San Luis Rey Valley	9-7
Batiquitos Lagoon Valley	9-22
San Marcos Valley	9-32

Source: DWR Bulletin 118

Table 4-3. Groundwater-Volume Pumped (ac-ft/yr)

Basin name (DWR basin number)	Metered or Unmetered	2006	2007	2008	2009	2010
San Luis Rey Valley (9-7)	unmetered	0	0	0	0	0
Batiquitos Lagoon Valley (9-22)	unmetered	0	0	0	0	0
San Marcos Valley (9-32)	unmetered	0	0	0	0	0
Groundwater as Percent of Total Water Supply		0	0	0	0	0

DWR Table 18

Table 4-4. Groundwater-Volume Projected to be Pumped (ac-ft/yr)					
Basin name	2015	2020	2025	2030	2035
San Luis Rey Valley (9-7)	0	1,000	1,000	1,000	1,000
Batiquitos Lagoon Valley (9-22)	0	0	0	0	0
San Marcos Valley (9-32)	0	0	0	0	0
Percent of Total Water Supply	0	3.4	3.4	3.3	3.2

DWR Table 19

4.3 Seawater Desalination

In 1999, Poseidon Resources Corporation (Poseidon) approached CMWD with a proposal to perform a feasibility study of seawater desalination in the City of Carlsbad. In March 2000, CMWD's Board of Directors instructed staff to prepare a report on this proposal, including the benefits and impediments to such a project. In short, numerous beneficial aspects to developing a seawater desalination project were identified, but the report also identified many serious and critical issues that needed to be addressed and resolved before the CMWD could obtain a cost effective, reliable, drought- proof water supply from this source.

Poseidon completed its feasibility study in July of 2001. This study showed that construction of a 50 mgd Seawater Desalination Facility was feasible and recommended construction of this facility on the Encina Power Plant site (owned by Cabrillo Power). This site offers advantages of an existing seawater intake, a method of brine discharge and an existing Regional Board discharge permit.

As a result of its feasibility study, Poseidon offered a proposal to construct a 50 mgd seawater desalination facility and to sell to CMWD 10 mgd (or more) of desalinated seawater. The proposal stated that Poseidon would be responsible for marketing any of the water CMWD did not purchase. Poseidon offered to sell the remaining water to the Vallecitos Water District, the Vista Irrigation District, the City of Oceanside, the San Dieguito Water District, Valley Center Municipal Water District, Santa Fe Irrigation District, Helix Water District, and the Olivenhain Municipal Water District. Poseidon also offered to sell the remaining water to the SDCWA.

The CMWD Board recognized early on that there were two paths that could lead to the development of a desalination plant in Carlsbad. One would be a public project owned and operated by SDCWA, developed through the normal public works process of design, bidding, government oversight, distribution, and pricing. The other would be a private project developed by Poseidon, using private procurement methods and operating practices, and selling water to public agencies through both public and private water pipelines at prices negotiated as part of a water purchase agreement.

In September of 2004, Poseidon and CMWD executed a Water Purchase Agreement for a private seawater desalination project. In April of 2005, the Agreement Memorializing Certain Understandings and Establishing a Framework For Cooperation (Framework Agreement) was entered into by SDCWA, CMWD, the City of Carlsbad, and the Carlsbad Housing and Redevelopment Commission. As part of the Framework Agreement, SDCWA agreed to sell the CMWD up to 5,000 ac-ft of desalinated seawater annually. This desalinated seawater purchased by CMWD would be deemed and designated as the "CMWD's Local Water" and would be additional to any water CMWD would receive as a member agency of SDCWA. It was anticipated that this designation would increase CMWD's reliability of water supplies in the event of a drought. It was further anticipated that the desalinated seawater that CMWD would purchase from the public, regional seawater desalination project would meet the same water quality

standards and be provided to CMWD at the same delivery points as the water CMWD currently purchases from SDCWA. SDCWA later determined not to proceed with the public project, and the nine potential water purchasers moved forward toward a private project with Poseidon.

In the latter part of 2010, at Poseidon's request, the nine potential water purchasers, all member agencies of SDCWA, requested that SDCWA provide a subsidy toward the purchase price of desalinated water from the private project. One of the alternatives SDCWA proposed in response to its member agencies' request was that SDCWA purchase the entire output of Poseidon's private project. Beginning in 2010, SDCWA has been discussing the purchase of all of the desalinated water which it would distribute to all member agencies.

SDCWA and CMWD also have been discussing CMWD's requests to purchase up to 10,000 ac-ft of desalinated seawater annually. As of this date an agreement between SDCWA and CMWD has not been completed. Assuming that Poseidon moves forward with constructing the seawater desalination facility on the current time schedule, it is anticipated that CMWD could start receiving desalinated seawater in the 2015 – 2020 timeframe as a blend with imported water supplies.

As shown in Table 4-5, the Carlsbad Seawater Desalination project and brackish groundwater from the San Luis Rey Valley provide opportunity for the development of desalinated water within the CMWD's service area as a future supply source.

Table 4-5. Opportunities for Desalinated Water

Sources of Water	Opportunities
Ocean water	Carlsbad Seawater Desalination Project/Poseidon Resources
Brackish ocean water	None
Brackish groundwater	Mission Basin of San Luis Rey Valley

4.4 Water Supply Projects

As shown in Table 4-6, CMWD has no current or planned future water supply projects other than possible expansions to the recycled water supply. The Poseidon desalination project and projects by SDCWA are not considered to be CMWD projects, but are projects being developed by those other entities.

Table 4 6. Future Water Supply Projects

Project Name	Projected Start Date	Projected Completion Date	Potential Project Constraints	Normal-year supply, ac-ft	Single-dry year supply, ac-ft	Multiple-Dry-Year first year supply, ac-ft	Multiple-Dry-Year second year supply, ac-ft	Multiple-Dry-Year third year supply, ac-ft
Groundwater supply consisting of wells, treatment, and delivery facilities	2013	2018	Requires Board and regulatory approval.	1,000	1,000	1,000	1,000	1,000

DWR Table 26

4.5 Transfer and Exchange Opportunities

CMWD relies entirely on water purchased from the SDCWA for potable water supplies, and does not participate individually in any water transfer or exchange programs at this time, as shown in Table 4-7.

Table 4-7. Transfer and Exchange Opportunities (ac-ft/yr)			
Transfer agency	Transfer or exchange	Short term or Long Term	Proposed Volume, ac-ft/yr
None	Not applicable	Not applicable	Not applicable

DWR Table 20

4.6 Projected Water Supplies

Current and projected water supplies for CMWD during a normal water year are presented in Table 4-8.

Table 4-8. Water Supplies-Current and Projected (ac-ft/yr)							
Water Supply Sources	Wholesaler Supplied Volume (yes/no)	2010 (actual)	2015	2020	2025	2030	2035
SDCWA	Yes	16,170	21,348	21,610	22,260	22,909	23,286
Supplier produced groundwater		0	0	1,000	1,000	1,000	1,000
Recycled water		3,517	5,000	6,500	6,500	6,500	6,500
Total		19,687	26,348	29,110	29,760	30,409	30,786

DWR Table 16

4.7 Water Supply Reliability

The water supply available to CMWD is defined based on three water supply condition scenarios: average/normal water year; single dry water year; and multiple dry water years.

The water supplies available to the CMWD from the SDCWA during single and multiple dry years are based on the historical dry periods presented in Table 4-9 and are defined in the SDCWA 2010 Urban Water Management Plan. Table 4-10 presents the CMWD's projected water supplies starting in 2015. Table 4-11 presents the current supply reliability for a normal climate year in 2010 and a multiple dry year period extending to 2013. SDCWA projects providing greater supplies to its member agencies in dry years because of higher demands for water (SDCWA, 2011). CMWD's wholesale water needs would be higher in dry years similar in proportion to the SDCWA projection.

Table 4-9. Basis of Water Year Data	
Water Year Type	Base Year(s)
Average Water Year	1960-2008
Single-Dry Water Year	1990
Multiple-Dry Water Years	Assume MWD will be allocating supplies

DWR Table 27

Source: Section 9 of the SDCWA 2010 Urban Water Management Plan.

Table 4-10. Supply Reliability – Historic Conditions (ac-ft/yr)						
	Average/ Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
			Year 1	Year 2	Year 3	Year 4
Wholesaler-SDCWA	21,348	21,348 [a]	21,399 [a]	21,451 [a]	21,502 [a]	21,554 [a]
Supplier produced groundwater	0	0	0	0	0	0
Recycled water	5,000	5,000	5,000	5,000	5,000	5,000
Total	26,348	26,348	26,399	26,451	26,502	26,554
Percent of Average/Normal Year	100	100	100	100	100	100

DWR Table 28

Note: Values for 2015.

[a] Does not include additional supply to meet increased demands in dry years.

Table 4-11. Water Supply Reliability – Current Water Sources, ac-ft/yr				
Sources	Normal Water Year	Multiple Dry Water Year Supply		
	Year 2010	Year 2011	Year 2012	Year 2013
Wholesaler-SDCWA	16,170	17,092 [a]	18,066 [a]	19,096 [a]
Supplier produced groundwater	0	0	0	0
Recycled water	3,500	3,500	3,500	3,500
Total	19,670	20,592	21,566	22,596
Percent of Normal	100	100	100	100

DWR Table 31

[a] Does not include additional supply to meet increased demands in dry years.

4.8 Factors Resulting in Inconsistency of Supply

CMWD's wholesale water supply is subject to some factors that could result in inconsistency of supply due to legal, environmental, water quality, or climatic factors, as presented in Table 4-9. CMWD has taken steps to ensure a more consistent water supply by expanding its use of recycled water and participating in the Poseidon seawater desalination project. CMWD could also maximize development of recycled water and possibly groundwater. With a successful conservation program already in place, CMWD could also effectively implement temporary water use reduction measures as defined in the water shortage contingency plan to assist in ensuring reliability.

The SDCWA has been taking steps to diversify its water supply with alternative sources. The reduced availability of any one supply source would be buffered because of the diversity of the supplies: the region is not reliant on a single source. To replace or supplement an existing supply, the SDCWA could take steps to increase development of transfers or seawater desalination. SDCWA's 2010 Urban Water Management Plan should be consulted for details regarding their actions to ensure consistency of the wholesale water supply.

Table 4-12. Factors Resulting in Inconsistency of Supply							
Water supply sources	Specific source name	Limitation quantification	Legal	Environmental	Water Quality	Climatic	Additional information
San Diego County Water Authority [a]			Current supply from Delta is occasionally inconsistent due to legal and environmental decisions. Future supply may not be consistent due to delays in construction, legal rulings, or environmental decisions. Legal decisions regarding the Quantification Settlement Agreement could reduce supplies from the Colorado River.		None	Drought and climate change could result in reductions of imported water supply. Colorado River supply may be reduced due to extended drought period.	
Local surface water	Not applicable						
Recycled water			None	None	None	None	

DWR Table 29

[a] See SDCWA's 2010 Urban Water Management Plan for details.

4.9 Water Quality

This section describes the water quality of the existing water supply sources and the manner in which water quality affects water management strategies.

CMWD receives its wholesale potable water supply from SDCWA as treated water that meets existing drinking water standards. The levels of salinity can vary greatly between the two sources of imported water. Water supplies from the Colorado River Aqueduct (CRA) can reach 700 milligrams per liter (mg/L) of TDS. By comparison, the State Water Project provides an average 250 mg/L of TDS from the East Branch and 325 mg/L from the West Branch. SDCWA is served from the East Branch of the State Water Project. High salinity levels can damage water delivery systems and home appliances and also cause problems for water recycling projects in the SDCWA's service area, especially for marketing recycled water to agricultural users growing salt-sensitive crops.

The quality of existing water supply sources is expected to be adequate. The salinity levels of the wholesale water supply are minimized by MWD through optimized blending approaches. The SDCWA's future planned seawater desalination supply from Poseidon Resources will help to reduce TDS concentrations in the overall water supply.

Water quality affects CMWD's water management strategies through CMWD's efforts to be in compliance with Federal and State regulations. These regulations require rigorous water quality testing, source assessments, and treatment compliance. Meeting TDS standards is managed primarily by the MWD through blending of its various water supplies. No other special water management strategies due to water quality effects are necessary.

No water quality impacts to current and future water supplies are projected as shown in Table 4-13.

Table 4-13. Water Quality – Current and Projected Water Supply Impacts (ac-ft/yr)

Water Supply Sources	Description of condition	2010	2015	2020	2025	2035	2035
San Diego County Water Authority	650 mg/L	0	0	0	0	0	0
Recycled water	1,000 mg/L	0	0	0	0	0	0
Total		0	0	0	0	0	0

DWR Table 30

Section 5

Recycled Water

Water recycling, defined as the treatment and disinfection of municipal wastewater to provide a water supply suitable for non-potable reuse, is an important component of Southern California's water resources. Non-potable reuse is the term applied to recycled water used for non-drinking water purposes such as filling lakes, ponds, and ornamental fountains; irrigating parks, campgrounds, golf courses, freeway medians, community green belts, school athletic fields, crops, and nursery stock; controlling dust at construction sites; and recharging groundwater basins.

Recycled water can also be used in certain industrial processes and for flushing toilets and urinals in nonresidential buildings. However, current regulations allow only new buildings to be dual-plumbed for this specific use. Additional uses for recycled water are being identified and approved as local agencies, regulators, and customers become comfortable with its use.

The purpose of this chapter is to provide information on recycled water and its use as a water resource in CMWD. CMWD is currently in the process of preparing an updated recycled water master plan. This chapter presents the quantity of wastewater generated in the service area, a description of the collection, treatment, disposal and reuse of that wastewater, and the projected amount of water recycling in CMWD's service area.

5.1 Wastewater Quantity and Disposal

Wastewater collection and transmission is provided by the City of Carlsbad and Leucadia Wastewater District within the CMWD service area. The Encina Wastewater Authority provides treatment, and effluent disposal through an ocean outfall from their Encina Water Pollution Control Facility (EWPCF). Refer to Figure 5-1 for sewer service area boundaries and location of the EWPCF.

Water recycling is provided by CMWD to developed areas within CMWD's boundaries. The area covered by the CMWD includes the majority of the City of Carlsbad's boundary, with the exception of the southeast corner of the City, which is served by Olivenhain Municipal Water District, and Vallecitos Water District.

The City of Carlsbad is a member of the Encina Wastewater Authority which owns and operates one wastewater treatment facility: the EWPCF. The present capacity of EWPCF is approximately 40.51 mgd. This capacity is owned by six member agencies that make up the Encina Wastewater Authority (EWA), including Vallecitos Water District, City of Vista, Buena Sanitation District, City of Carlsbad, Leucadia Wastewater District, and the City of Encinitas. The City of Carlsbad owns capacity rights for 10.26 mgd. The facility provides for full secondary treatment, sludge handling and disposal through a deep ocean outfall that extends along the ocean floor to a point 1.5 miles off shore, at a depth of over 150 feet. The treatment levels meet all current State and Federal requirements.

Table 5-1 shows the projected amounts of wastewater to be generated and collected in the City of Carlsbad's sewer service area. The wastewater amounts generated within the CMWD boundary are estimated to be approximately five to ten percent greater than the City of Carlsbad's sewer service area because it also includes a portion of the Leucadia Wastewater District.

Table 5-1. Recycled Water-Wastewater Collection And Treatment (ac-ft/yr)						
Type of Wastewater	2010	2015	2020	2025	2030	2035
Wastewater collected and treated in service area	9,400	9,700	10,400	11,200	11,200	11,200
Volume that meets recycled water standard	3,500	5,000	6,500	6,500	6,500	6,500

DWR Table 21

Source: Figure 5-1, pg. 5-7, City of Carlsbad Sewer Master Plan Update, January 2010. The 2010 flows are based on 8.4 mgd average day flow. Buildout flows in City of Carlsbad's sewer service area are estimated at 10.19 mgd average day flow.

Projected wastewater disposal methods and quantities are presented in Table 5-2.

Table 5-2. Recycled Water-Non-Recycled Wastewater Disposal (ac-ft/yr)							
Method of Disposal	Treatment Level	2010	2015	2020	2025	2030	2035
Ocean outfall	Secondary or better	5,900	4,700	3,900	4,700	4,700	4,700

DWR Table 22

5.2 Recycled Water Use

The CMWD began serving recycled water in 1993. Since 1993, CMWD has been constructing treatment facilities, pumping stations, reservoirs, and pipelines plus requiring developers to install pipelines within their projects for distribution of recycled water.

Recycled water is presently supplied to CMWD from three sources consisting of the 4.0 mgd Carlsbad Water Recycling Facility (owned and operated by CMWD), the 5.0 mgd Meadowlark Water Reclamation Facility (owned and operated by the Vallecitos Water District) and the 1.0 mgd Gafner Wastewater Treatment Plant (owned and operated by the Leucadia Wastewater District). The maximum flow rate available to CMWD from each treatment facility varies. The Carlsbad Water Recycling Facility can be maximized at 4.0 mgd (4,480 ac-ft/yr), but on an average annual basis has not exceeded 2,000 ac-ft/yr. The Meadowlark Water Reclamation Facility ranges from 2.0 mgd during the months of November through March and 3.0 mgd during the months of April through October and this equates to 2,989 ac-ft/yr. The remaining amount of recycled water produced by the Meadowlark Water Reclamation Facility can be sold to Olivenhain Municipal Water District under an agreement up to a maximum of 1.0 mgd or 1,120 ac-ft/yr. The Gafner Water Reclamation Plant is limited to 1.0 mgd (1,120 ac-ft/yr) but CMWD historically has purchased an average of 247 ac-ft/yr over the last seven years.

CMWD has approximately 78.89 miles of recycled water distribution pipelines, as shown in Figure 5-2. As of December 2010, this distribution system currently had 675 meters supplying 362 recycled use sites. The largest customers served by recycled water include La Costa Resort and Spa, Four Seasons Resort at Aviara, Kemper Sports Management (Carlsbad Municipal Golf Course), and Legoland of California. Other recognized sites using recycled water for irrigation include Grand Pacific Palisades Hotel, Karl Strauss Brewery, Caltrans (Interstate 5 landscaping), and the Flower Fields. In addition, recycled water is also supplied to parks, median strips, shopping areas, the common areas of numerous homeowners associations, and industrial parks.

SEWER SERVICE AREAS WITHIN CMWD

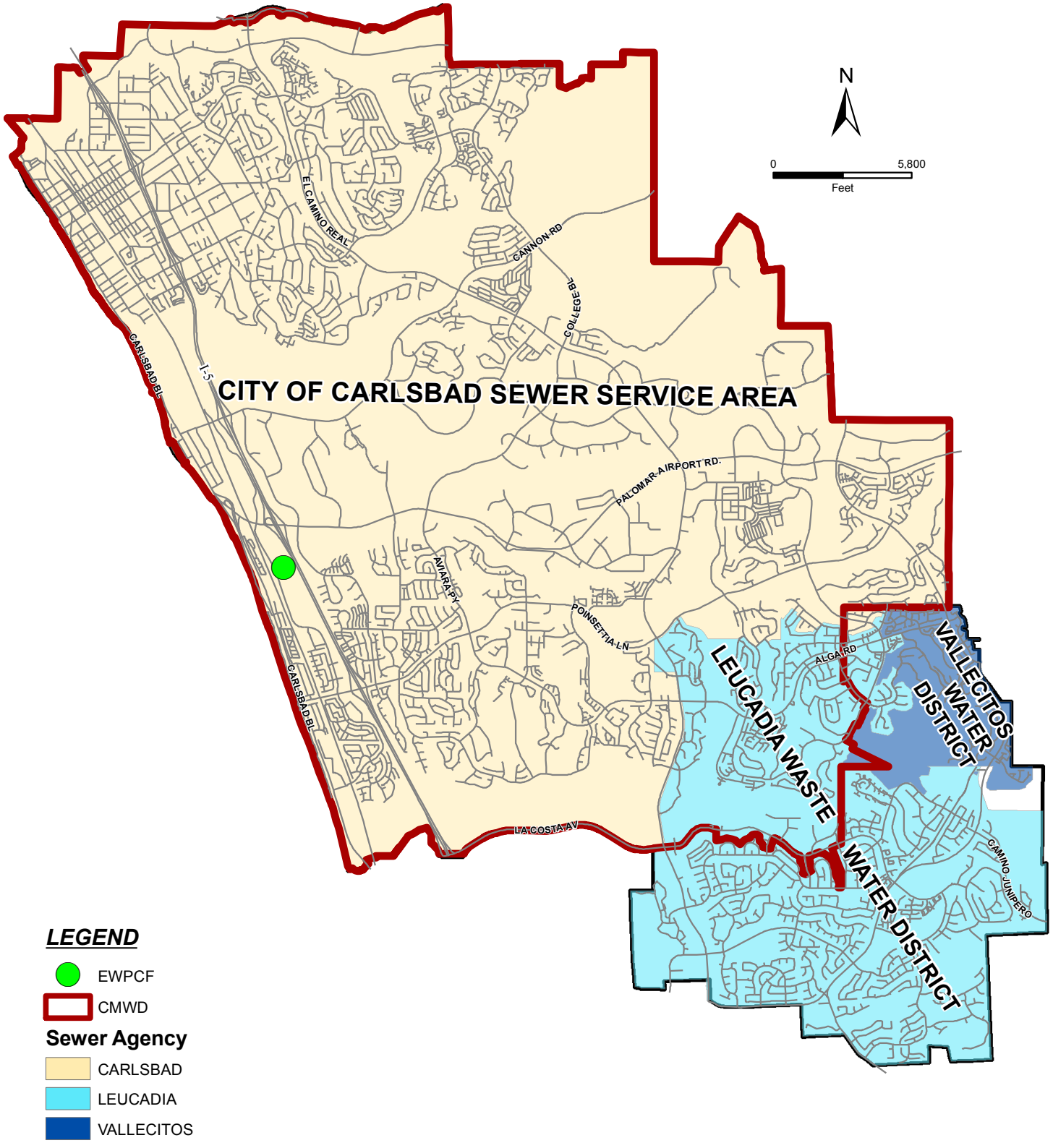


FIGURE 5-1

Buena Vista Lagoon
Lake Calavera
Oceanside
"C" Tank
Calavera PS
Shadowridge WRP
Agua Hedionda Lagoon
Faraday PRS
Legoland
Kemper Sports Management
Bressi PS
La Costa PRS
Pacific Ocean
Carlsbad WRF
"D" Tank PS
Twin "D" Tanks
Avenida Encinas PRS
Corintia Meter
Meadowlark WRF
Four Seasons Resort
Aviara Resort Association
Batiquitos Lagoon
La Costa Resort
OMWD Meter
Mahr Reservoir
Gafner WRP
Encinitas

CANNON RD
EL CAMINO REAL
CARLSBAD BL
PALOMAR AIRPORT RD
MELROSE DR
POINSETTIA LN
ALGA RD
RANCHO SANTA FE RD
CAMINO JUNIPERO
OLIVENHAIN RD

Legend

- Inactive WRP
- Largest 5 Customers
- Pump Station
- Meter
- Pressure Regulating Station
- WRF
- Tank
- Reservoir

Pipelines by Pressure Zone

- 318
- 384
- 550
- 580
- 660

Other

- Freeways
- Major Roads
- Local Streets
- Carlsbad Municipal Water District Boundary
- Water Body
- Carlsbad City Limits
- San Diego County

N

Feet
0 5,000 10,000

Figure 5-2
Existing Recycled Water System
Recycled Water Master Plan
Carlsbad Municipal Water District

DATE: 3/14/2011 FILENAME: c:\pw_working\projectwise\lwang\d0102644\Figure_2_1 Existing System Ver B.mxd

Table 5-3 presents the differences between 2005 projections and 2010 recycled water use. The projected recycled water use is presented in Table 5-4.

Table 5-3. Recycled Water-2005 UWMP Use Projection Compared with 2010 Actual (ac-ft/yr)

Use Type	2010 Actual Use	2005 Projection for 2010
Landscape irrigation	2,500	not projected
Golf course irrigation	1,017	not projected
Total	3,517	5,000

DWR Table 24

Source: Table 6-1, pg. 31, District 2005 Urban Water Management Plan

Table 5-4. Recycled Water-Potential Future Use (ac-ft/yr)

User Type	Description	Feasibility	2015	2020	2025	2030	2035
Landscape irrigation	See text	✓	4,200	5,700	5,700	5,700	5,700
Golf course irrigation	See text	✓	800	800	800	800	800
Total			5,000	6,500	6,500	6,500	6,500

DWR Table 23

5.3 CMWD's Commitment to Recycled Water Use

CMWD charges a rate of $1,098/ac-ft ($2.52/unit) for recycled water based on a review of the recycled water financial program in 2009.

It is the policy of CMWD that recycled water shall be used within the jurisdiction wherever its use is economically justified, financially and technically feasible, and consistent with legal requirements, preservation of public health, safety and welfare, and the environment. This policy requires CMWD to prepare and adopt a Recycled Water Master Plan to define, encourage and develop the use of recycled water, and to update this plan no less than every five years.

City policy, as established in 1990 and recently revised and approved by the CMWD Board requires that recycled water be used on all new land use developments proposed in Carlsbad for all State-approved non-potable uses, if and when available. The installation of dual irrigation systems and connections to recycled water sources is also required and subject to the conditions of CMWD's Recycled Water Master Plan.

CMWD has Cross Connection Control Technicians who review on-site irrigation systems to verify no cross connections have occurred between the potable and recycled water systems. In addition, reviews are made to eliminate overspray and nuisance problems. To date, no major problems have occurred. A quarterly report is submitted to the San Diego Regional Water Quality Control Board on any field tests and observations. For businesses, cross connection tests are often performed at night to reduce impacts on their operations and customers.

User guidelines have been established by CMWD in conjunction with the review by San Diego County Department of Environmental Health, which are intended to provide the basic parameters for the use of recycled water in landscape irrigation. These guidelines include:

1. Irrigation between the hours of 10:00 p.m. and 6:00 a.m. only.
2. Irrigation in a manner that will minimize run-off, pooling and ponding.
3. Adjustment of spray heads to eliminate overspray onto areas not under the control of the user.
4. Monitoring and maintenance of the system to minimize equipment and material failure.
5. Education of all maintenance personnel on a continuous basis as to the presence of recycled water and for what purposes it is allowed to be used.
6. Prior approval by CMWD of all proposed changes and modifications to any private facilities.
7. An annual cross connection inspection.
8. Designation of an on-site supervisor, in writing, who is familiar with the plumbing system, basic concepts of backflow/cross connection protection and the specific requirements of a recycled water system.

Each year, SDCWA hosts a one-day certified course designed to provide irrigation supervisors with a basic understanding of recycled water. Completion of the Recycled Water Site Supervisor Training fulfills the training requirement as mandated by regulatory authorities. The class provides information to supervisors on the water recycling process, recycled water quality and safety issues, the duties and responsibilities of the supervisor, landscape irrigation fundamentals, maintenance and management, and cross connection control shut-down tests and inspections. Understanding similarities and differences between recycled and potable water is important to the successful operation of a recycled water system.

Actions used by the CMWD to encourage recycled water use are summarized in Table 5-5.

Table 5-5. Methods to Encourage Recycled Water Use (ac-ft/yr)

Actions	Projected Results					
	2010	2015	2020	2025	2030	2035
Financial Incentives [a]	--	--	--	--	--	--
Mandatory Reuse Ordinance [b]	3,500	5,000	6,500	6,500	6,500	6,500
Total	3,500	5,000	6,500	6,500	6,500	6,500

DWR Table 25

[a] CMWD's current rate for recycled water ($1,098/ac-ft) is lower than the potable water rate for irrigation which is $1,294/ac-ft. This provides some incentive to use recycled water, but is not measurable.

[b] Mandatory use ordinance requires retrofit at existing sites and new land development to use recycled water, and accounts for the projected results.

Section 6

Water Conservation

Water conservation, or demand management, continues to be a significant part of regional water resource planning strategies in San Diego County. CMWD is committed to supporting these regional water conservation activities, and in many cases, provides indirect financial assistance. In addition, CMWD implements local water conservation management measures to augment and complement these regional programs.

The unpredictable water supply and ever increasing demand on California's complex water resources have resulted in a coordinated effort by the DWR, water utilities, environmental organizations, and other interested groups to develop a list of urban best management practices (BMPs) for conserving water. This consensus-building effort resulted in a Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), which formalizes an agreement to implement these BMPs and makes a cooperative effort to reduce the consumption of California's water resources. The BMPs as defined by the MOU are presented in Table 6-1. The BMPs as defined in the MOU are generally recognized as standard definitions of water conservation measures. The MOU is administered by the California Urban Water Conservation Council (CUWCC). CMWD is currently an MOU signatory. Copies of the most recent BMP Activity Reports are included in Appendix D.

Table 6-1. Water Conservation Best Management Practices Listed in MOU

Revised (Current) CUWCC BMP Category			Former CUWCC BMP Name		
Category	BMP No.	BMP Name	BMP No.	BMP Name	Implemented
Foundational BMPs	BMP 1	Utility Operations			
	BMP 1.1	Operations Practices			
	BMP 1.1.1	Conservation Coordinator	12	Conservation Coordinator	✓
	BMP 1.1.2	Water Waste Prevention	13	Water Waste Prohibition	✓
	BMP 1.1.3	Wholesale Agency Assistance	10	Wholesale Agency Assistance Programs	Not applicable
	BMP 1.2	Water Loss Control	3	System Water Audits, Leak Detection, and Repair	✓
	BMP 1.3	Metering with Commodity Rates	4	Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections	✓
	BMP 1.4	Retail Conservation Pricing	11	Conservation Pricing	✓
	BMP 2	Educational			
	BMP 2.1	Public Information	7	Public Education Programs	✓
	BMP 2.2	School Education	8	School Education Programs	✓

Table 6-1. Water Conservation Best Management Practices Listed in MOU					
Revised (Current) CUWCC BMP Category			Former CUWCC BMP Name		
Category	BMP No.	BMP Name	BMP No.	BMP Name	Implemented
Programmatic BMPs	BMP 3	Residential			
	BMP 3.1	Residential Assistance	1 & 2	Water Survey Programs for Single-Family and Multi-Family Residential Customer (Indoor) and Residential Plumbing Retrofit	✓
	BMP 3.2	Landscape Water Survey	1	Water Survey Programs for Single-Family and Multi-Family Residential Customer (Outdoor)	✓
	BMP 3.3	High-Efficiency Clothes Washers	6	High-Efficiency Washing Machine Rebate Programs	✓
	BMP 3.4	Water Sense Standard (WSS) Toilets	14	Residential ULFT Replacement Programs	✓
	BMP 3.5	Water Sense Standard (WSS) for New Residential Development	(new)		
	BMP 4	Commercial Industrial Institutional (CII)	9	Conservation Programs for Commercial, Industrial, and Institutional Accounts	✓
	BMP 5	Landscape	5	Large Landscape Conservation Programs and Incentives	✓

CMWD conducts an ongoing water conservation program. A description of each BMP is provided in this section.

6.1.1 BMP 1.1.1. Conservation Coordinator

CMWD has one full-time Water Conservation Specialist and one Supervisor devoting twenty-five percent time to conservation coordination.

6.1.2 BMP 1.1.2. Water Waste Prohibition

In 1991, CMWD adopted the Carlsbad Water Ethic, which specifies responsible water use and is designed to promote the most reasonable, wise and efficient use of water in Carlsbad. Practices include:

- New landscaping shall incorporate drought-tolerant plant materials and drip irrigation systems, wherever possible.
- Water can never leave the user's property due to over-irrigation of landscape.
- Watering must be done during the early morning or evening hours to minimize evaporation (between 4:00 p.m. and 9:00 a.m. the following morning).
- All leaks must be investigated and repaired.
- Water cannot be used to clean paved surfaces, such as sidewalks, driveways, parking areas, etc., except to alleviate immediate safety or sanitation hazards.

- Reclaimed or recycled water shall be used wherever and whenever available.

CMWD also has an ordinance for water cutbacks that addresses water softeners, cooling systems, car washes, commercial laundries, and decorative fountains.

6.1.3 BMP 1.1.3. Wholesale Agency Assistance Programs

This BMP is not applicable to CMWD because CMWD is not a wholesale agency.

6.1.4 BMP 1.2. System Water Audits, Leak Detection and Repair

CMWD reviews monthly water production records and compares the amount of water produced against the monthly-billed consumption records to determine the amount of unaccounted for water. CMWD employees routinely drive water transmission line routes to visually look for water leaks. In addition, CMWD has a meter exchange program where older, less accurate water meters are exchanged for new, accurate ones. Beginning in 2009, CMWD has been converting to Automatic Meter Reading (AMR) Fixed Network with Distribution System Leak Detection. This allows CMWD staff to be able to respond to leaks immediately rather than waiting for leaks to surface. This technology will be able to save quantifiable amounts of water leading to increased sustainability of water.

6.1.5 BMP 1.3. Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

Metering of all water use and billing by volume has long been the standard practice of the CMWD.

6.1.6 BMP 1.4. Conservation Pricing

CMWD uses a tiered water rate structure applicable to all residential customer classifications based on their monthly usage relative to meter size. There are three tiers. Tier 1 (conservation) applies to residential customers consuming 12 ccf or less. Tier 2 applies to residential customers consuming 13 to 20 ccf, and Tier 3 applies to residential customers using 21 ccf or more.

6.1.7 BMP 2.1. Public Information Programs

CMWD has an extensive public information program, including: a quarterly newsletter mailed to all customers, a web site at www.carlsbad.ca.gov/water/index.html, computerized landscape advice, water awareness calendars, bill inserts, information on the water bill regarding previous usage, an annual promotional event at the local mall, various promotional campaigns, and membership in North County Water Agencies (NCWA), a consortium of 11 water agencies.

6.1.8 BMP 2.2. School Education Programs

CMWD has education programs available for elementary grade levels, such as: annual poster contest (4th); watershed awareness program (2nd & 5th); water quality education (grade and high school); Admiral Splash (4th); and California Smith, W.I. (6th).

6.1.9 BMP 3.1. Residential Plumbing Retrofit

A City of Carlsbad ordinance was adopted in August 1991, which requires ULFTs in new construction and retrofits. State legislation effective January 1, 1992 requires the installation of efficient plumbing in new construction (1.6 gallons per flush (gpf) toilets; 2.5 gallons per minute (gpm) showerheads; 1.0 gpf urinals; and 2.2 gpm kitchen/bathroom faucets). State legislation effective January 1, 1994 requires that only ULFTs be sold in California.

6.1.10 BMP 3.2. Water Survey Programs For Single-Family Residential and Multi-Family Residential Connections

CMWD has offered water audits to all residential customers since 1991. These audits are free of charge and funded entirely by CMWD. Audit components include: reviewing water usage history with the customer; checking for leaks inside and outside; checking for low water use plumbing devices; inspecting irrigation systems; recommending improvements; and providing conservation literature.

6.1.11 BMP 3.3. High-efficiency Washing Machine Rebate Programs

CMWD began participating in SDCWA's high efficiency washing machine rebate (now voucher) program in 1998. This program offers a financial incentive to customers who replace their conventional clothes washing machine with a water and energy efficient washing machine.

6.1.12 BMP 3.4. Residential ULFT Replacement Programs

The CMWD began offering rebates worth up to $75 for the replacement of older toilets with ultra-low-flush toilets in 1990. Since 1991, CMWD has been participating in SDCWA's rebate and voucher programs.

6.1.13 BMP 4. Conservation Programs for Commercial, Industrial, and Institutional Accounts

The CMWD participates in the SDCWA-operated commercial, industrial, and institutional (CII) program, which provides point-of-purchase vouchers to CII customers for ultra-low-flush toilets, low-flow and waterless urinals, high efficiency, coin-operated clothes washers and cooling tower conductivity controllers. Point-of-purchase vouchers encourage implementation of water saving devices as the voucher reduces the up-front cost to businesses as well as reducing water, sewer and energy costs for ten or more years. Reduced utility costs help to create a business-friendly environment and a strong economy.

6.1.14 BMP 5. Large Landscape Conservation Programs and Incentives

CMWD's Water Conservation Specialist has been trained to conduct landscape water audits with in-house equipment and software and has been doing so since 1991. In addition, since 1990, CMWD has participated in SDCWA's contractor-operated large landscape program for landscapes greater than 1 acre. This program provides a thorough survey of the irrigation system, soils and plant materials, and calculates an irrigation schedule based upon technology developed by Cal Poly San Luis Obispo.

6.2 Additional Issues

This section describes additional issues required to be addressed by the Act. Non-economic factors, including environmental, social, health, customer impacts, and technological are not thought to be significant in deciding which BMPs to implement. There are no planned water supply projects that would provide water at a higher unit cost. CMWD has the legal authority to implement the BMPs.

Section 7

Water Supply to Demand Comparison

This chapter provides a comparison of projected water supplies and demands for normal, single-dry, and multiple dry water years. Appendix E presents CMWD's water shortage contingency plan.

7.1 Normal Year Water Supply to Demand Comparison

The normal water year current and projected water supplies are compared to the current and projected demand for CMWD in Table 7-1.

Table 7-1. Supply and Demand Comparison-Normal Year (ac-ft/yr)

	2015	2020	2025	2030	2035
Supply totals	26,348	29,110	29,760	30,409	30,786
Demand totals	26,348	28,110	28,760	29,409	29,786
Difference (supply minus demand)	0	1,000	1,000	1,000	1,000
Difference as a percent of supply	0	3.4	3.4	3.3	3.2
Difference as a percent of demand	0	3.6	3.5	3.4	3.4

DWR Table 32

7.2 Single Dry Year Water Supply to Demand Comparison

The current and projected water supplies are compared to the demands for a single dry year for CMWD in Table 7-2. SDCWA projects providing additional supplies during dry years to meet higher demands during those dry years (SDCWA, 2011). CMWD has not developed a projection of their dry year demands, but anticipates a similar magnitude increase in demands and supplies from SDCWA.

Table 7-2. Supply and Demand Comparison-Single Dry Year (ac-ft/yr)

	2015	2020	2025	2030	2035
Supply totals [a]	26,348	29,110	29,760	30,409	30,786
Demand totals [a]	26,348	28,110	28,760	29,409	29,786
Difference (supply minus demand)	0	1,000	1,000	1,000	1,000
Difference as a percent of supply	0	3.4	3.4	3.3	3.2
Difference as a percent of demand	0	3.6	3.5	3.4	3.4

DWR Table 33

[a] *Does not include additional supplies and demands for dry years.*

7.3 Multiple Dry Year Water Supply to Demand Comparison

The projected water supplies are compared to the demands for multiple dry years for CMWD in Table 7-3. The additional demands during dry years and the resulting increased supply from SDCWA have not been projected by CMWD, but are expected to be of a similar magnitude that is projected by SDCWA for the region.

Table 7-3 Supply and Demand Comparison -Multiple Dry Year Events (ac-ft/yr)

		Supply and Demand Comparison – Multiple Dry Year Events				
		2015	2020	2025	2030	2035
Multiple-dry year First year supply	Supply totals [a]	26,348	29,110	29,760	30,409	30,786
	Demand totals [a]	26,348	28,110	28,760	29,409	29,786
	Difference	0	1,000	1,000	1,000	1,000
	Difference as percent of supply	0	3.4	3.4	3.3	3.2
	Difference as percent of demand	0	3.6	3.5	3.4	3.4
Multiple-dry year Second year supply	Supply totals [a]	26,879	29,239	29,888	30,484	[b]
	Demand totals [a]	26,691	28,239	28,888	29,484	[b]
	Difference	187	1,000	1,000	1,000	[b]
	Difference as percent of supply	0.7	3.4	3.3	3.3	[b]
	Difference as percent of demand	0.7	3.5	3.5	3.4	[b]
Multiple-dry year Third year supply	Supply totals [a]	27,420	29,368	30,018	30,560	[b]
	Demand totals [a]	27,039	28,368	29,018	29,560	[b]
	Difference	381	1,000	1,000	1,000	[b]
	Difference as percent of supply	1.4	3.4	3.3	3.3	[b]
	Difference as percent of demand	1.4	3.5	3.4	3.4	[b]

DWR Table 34

[a] Doesn't include additional supplies and demands for dry years.

[b] Not included because beyond the planning horizon for this Plan.

References

City of Carlsbad, *2005 Urban Water Management Plan,* December 2005.

California Department of Water Resources, *California's Groundwater, Bulletin 118 Update 2003*, October 2003.

California Department of Water Resources, *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan*, March 2011.

CUWCC BMP Reports, 2009-2010

San Diego County Water Authority, *Member Agency Technical Review Draft of the 2010 Urban Water Management Plan,* March 30, 2011.

Appendix A: Notice of Public Hearing, Notifications, Agenda, and Minutes

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the Board of Directors of the Carlsbad Municipal Water District will hold a public hearing in the City Council Chambers, 1200 Carlsbad Village Drive, Carlsbad, California, at 6:00 p.m. on Tuesday, May 24, 2011, to consider adoption of the 2010 Urban Water Management Plan (UWMP), as required by the California Water Code. The goals of the Urban Water Management Plan are to summarize historic, current and projected potable and recycled water use for the area; identify conservation and reclamation measures already adopted and practiced; to evaluate the ability of the current water supply to meet future demands; to evaluate potential alternative available supplies; to evaluate the effectiveness of specific alternative conservation measures; and to provide a schedule for implementation for proposed action.

Copies of the Plan are available for review at the Faraday Center, 1635 Faraday Avenue; at the Carlsbad City Libraries located at 1250 Carlsbad Village Drive and 1775 Dove Lane; at the City Clerk's Office, 1200 Carlsbad Village Drive and on the city's website at www.carlsbadca.gov.

If you have any questions regarding the Plan, please contact Deputy City Engineer Bill Plummer at 760-602-2768.

If you challenge the adoption of the 2010 Urban Water Management Plan in court, you may be limited to raising only those issues raised by you or someone else at the public hearing described in the notice, or in written correspondence delivered to the City Clerk's Office, 1200 Carlsbad Village Drive at, or prior to the public hearing.

CARLSBAD MUNICIPAL WATER DISTRICT BOARD OF DIRECTORS

PUBLISH: May 10 and May 17, 2011

EXHIBIT 1 - 2010 URBAN WATER MANAGEMENT PLAN NOTIFICATION LIST

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	David De Cordova	City of Carlsbad Planning Department 1635 Faraday Drive Carlsbad, CA 92008	760-602-4604 760-602-8560 fax david.decordova@carlsbadca.gov
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	Karen Brindley Shelley Glennon	City of San Marcos Planning Department 1 Civic Center Drive San Marcos, CA 92069-2949	760-744-1050 x3220 760-591-4135 fax kbrindley@ci.san-marcos.ca.us
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	Devon Muto	County Dept. of Planning and Land Use Mail Station 0650 5201-B Ruffin Road San Diego, CA 92123	858-694-3016 858-694-3373 fax devon.muto@sdcounty.ca.gov
	Nelson Olivas	County of San Diego 5569 Kearny Villa Road San Diego, CA 92123	
San Diego County Water Authority	Dana Friehauf Kelley Gage Tim Bombardier	San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123	858-522-6749 858-268-7881 fax dfriehauf@sdcwa.org
San Diego Association of Governments	Charles "Muggs" Stoll Department Director	SANDAG 401 B Street, Suite 800 San Diego, CA 92101 (or Mail Station 980)	619-699-6945 619-699-1905 fax mst@sandag.org
San Diego LAFCO	Ingrid Hansen Chief, Governmental Services	1600 Pacific Highway, Room 452 San Diego, CA 92101	619-531-5400

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County of San Diego

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North County Times

Formerly known as the Blade-Citizen and The Times-Advocate and which newspapers have been adjudicated newspapers of general circulation by the Superior Court of the County of San Diego, State of California, for the City of Oceanside and the City of Escondido, Court Decree number 171349, for the County of San Diego, that the notice of which the annexed is a printed copy (set in type not smaller than nonpariel), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

May 24th & 31st, 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at **Escondido,** California

On this 31st, day of May, 2011

Jane Allshouse
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NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the Board of Directors of the Carlsbad Municipal Water District will hold a public hearing in the City Council Chambers, 1200 Carlsbad Village Drive, Carlsbad, California, at 6:00 p.m. on Tuesday, June 7, 2011, to consider adoption of the 2010 Urban Water Management Plan (UWMP), as required by the California Water Code. The goals of the Urban Water Management Plan are to summarize historic, current and projected potable and recycled water use for the area; identify conservation and reclamation measures already adopted and practiced; to evaluate the ability of the current water supply to meet future demands; to evaluate potential alternative available supplies; to evaluation the effectiveness of specific alternative conservation measures; and to provide a schedule for implementation for proposed action.

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CARLSBAD MUNICIPAL WATER DISTRICT BOARD OF DIRECTORS
nct 2290893 05/24,05/31/2011

16

CARLSBAD MUNICIPAL WATER DISTRICT – AGENDA BILL

AB# 734	HOLD PUBLIC HEARING TO RECEIVE COMMENTS AND APPROVE 2010 URBAN WATER MANAGEMENT PLAN FOR CARLSBAD MUNICIPAL WATER DISTRICT	DEPT. DIRECTOR
MTG. 6/7/11		CITY ATTORNEY
DEPT. UTIL		CITY MANAGER

RECOMMENDED ACTION:

Adopt Resolution No. 1419 to hold a public hearing to receive comments and approve the 2010 Urban Water Management Plan for Carlsbad Municipal Water District.

ITEM EXPLANATION:

This 2010 Urban Water Management Plan (Plan) has been prepared in accordance with the Urban Water Management Planning Act (Act), as amended, California Water Code Division 6, Part 2.6, Sections 10610 through 10657. The Act requires every urban water supplier that provides water for municipal purposes to more than 3,000 connections or supplying more than 3,000 acre-feet (ac-ft) of water annually to adopt and submit a plan every five years to the California Department of Water Resources (DWR). The Act was most recently amended in November 2009 with the adoption of Senate Bill (SB) X7-7. The most significant revision is the requirement for establishing per capita water use targets and an option to delay 2010 Plan adoption to July 1, 2011. Following is a summary of the information contained in the 2010 Plan.

Water Supply, Population & Water Demand Projections - The Plan presents a description of the historical and existing water supply for CMWD's 32.32 square mile service area (see Exhibit 1 for Study Area). The historical potable water supplies included groundwater and surface water from Mission Basin of San Luis Rey River, Agua Hedionda Creek, and Lake Calavera. CMWD was created in 1954 to obtain imported water, and the use of the historical supplies was discontinued by 1963. The existing potable water supply is now only imported water from the Colorado River, and State Water Project. In addition to imported water, CMWD began supplying recycled water to customers in 1993 to reduce CMWD's dependence on imported water and increase reliability. Water demand is estimated in several categories including residential, commercial, industrial, agriculture, landscape, and system losses. The Plan summarized the projected water demand information and the totals are shown below.

Year	2005	2010	2015	2020	2025	2030	2035
Population	80,874	84,838	89,470	94,101	96,930	99,759	101,402
Water Demand (acre-feet per year)							
Potable Water	19,759	15,076	20,281	20,529	21,147	21,764	22,122
System Losses	1,373	1,094	1,067	1,080	1,113	1,145	1,164
Recycled Water	1,966	3,517	5,000	6,500	6,500	6,500	6,500
Total	23,098	19,687	26,348	28,109	28,760	29,409	29,786

DEPARTMENT CONTACT: William Plummer, (760) 602-2768, bill.plummer@carlsbadca.gov

FOR CITY CLERKS USE ONLY

BOARD ACTION:				
	APPROVED	☒	CONTINUED TO DATE SPECIFIC	☐ _____
	DENIED	☐	CONTINUED TO DATE UNKNOWN	☐
	CONTINUED	☐	RETURNED TO STAFF	☐
	WITHDRAWN	☐	OTHER – SEE MINUTES	☐
	AMENDED	☐		

Per Capita Water Use Reduction – The Plan was required to demonstrate achieving a reduction in per capita water use that would help the State achieve an overall 20 percent reduction in per capita water use by 2020. The DWR allowed each agency to calculate the current demand using one of four methods. Based on a review of each method, the Plan used Method 4, which is a provisional method that develops the target based on commercial, industrial, indoor residential, outdoor, and water loss components. Because CMWD's recycled water demand was greater than 10 percent of 2008 retail water delivery, a 10 to 15-year baseline period was allowed to be used ending no later than December 31, 2004. Method 4 provided a per capita demand target for 2020 of 207 gpcd and an interim 2015 target of 232 gpcd.

Since 2007, CMWD's per capita water use has been experiencing a decline partially due to increased retail water cost, increased use of water conservation measures in the community, increased use of recycled water for homeowner association maintained landscaping, and poor economic conditions. In 2010, CMWD's per capita water use was already below the 2020 target. However, this 2010 level of water use may be temporary and a partial rebound to prior water use levels may occur. Going forward, CMWD's approach to meeting the 2020 per capita water use target consists of:

- increased saturation into the customer base of low flow plumbing devices and fixtures
- continued implementation of demand management measures (water conservation)
- reductions that occur with the increased costs of water, and
- increased use of recycled water.

Potable Water Supplies – Three potable water supply sources are presented in the Plan. The first source includes imported water from Metropolitan Water District of Southern California (MWD) and the San Diego County Water Authority (SDCWA), which totaled 16,170 acre-feet in 2010 and is projected to be 23,286 acre-feet in 2035. Imported water is estimated to be 75 percent of CMWD's total water supply in 2035. The second source includes groundwater, primarily from the Mission Basin of the San Luis Rey River, where CMWD has 2,382 acre-feet of pre-1914 appropriative rights. Another potential groundwater source includes the Agua Hedionda Creek Basin, in the vicinity of the Rancho Carlsbad Golf Course, where the safe yield is estimated at 400 acre-feet per year according to a 1991 report prepared by Barrett Consulting Group. Historically, CMWD used four existing wells in this area, referred to as "The Cannon Well Field" and extracted up to 238 acre-feet per year. However, CMWD does not have a groundwater permit in the Agua Hedionda basin. The Plan indicates that 1,000 acre-feet per year could be obtained from groundwater sources beginning in 2020. A third source of potable water is desalinated seawater. The Plan states that CMWD has been in discussion with the SDCWA to purchase up to 10,000 acre feet per year of desalinated seawater from the private development by Poseidon Resources from their proposed 50 million gallons per day (mgd) desalination treatment plant project. However, the Plan concludes that no desalinated seawater will be directly received from this source, but may be indirectly received through CMWD's four existing SDCWA supply connections as a blend of imported and desalinated water.

Recycled Water Supply - As part of the water supply mix, the Plan indicates that CMWD is committed to continuing the use of recycled water by supplying a demand of 5,000 acre-feet in 2015 and increasing to 6,500 acre-feet per year by 2020. By 2035 recycled water is projected to be 21 percent of CMWD's total water supply mix.

Water Supply Reliability – The Plan addressed three water supply condition scenarios: a normal water year, a single dry water year; and multiple dry water years. The imported water supply for CMWD was coordinated with SDCWA. Table 4-11 in the Plan presents current supply reliability for a normal climate year in 2010 and multiple dry year period extending to 2013. SDCWA projects providing 100 percent of its member agencies imported water demands in dry water years.

Water Quality – CMWD receives its wholesale potable water supply from SDCWA as treated water that meets all existing drinking water standards. The levels of salinity can vary greatly between the two sources of imported water. Water supplies from the Colorado River Aqueduct can reach 700 milligrams per liter (mg/L) of total dissolved solids (TDS). By comparison, the State Water Project provides an average 250 mg/L of TDS from the East Branch and 325 mg/L from the West Branch. SDCWA is served from the East Branch. High salinity levels can damage water delivery systems and

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home appliances and also cause problems for water recycling projects especially for marketing recycled water to agricultural users growing salt-sensitive crops.

The plan concludes that the quality of existing water supply sources is expected to be adequate. The salinity levels of the wholesale water supply are minimized by MWD through optimized blending approaches. The SDCWA's future planned seawater desalination supply from Poseidon Resources will also help reduce TDS concentrations in the imported water supply to CMWD. No water quality impacts to current and future water supplies are projected.

Demand Management (Water Conservation) – Water conservation continues to be a significant part of resources planning strategies. The Plan states that CMWD is committed to supporting regional water conservation activities, and implement local water conservation management measures to augment and compliment the regional programs. CMWD has agreed to a "Memorandum of Understanding Regarding Urban Water Conservation in California" (MOU). This MOU contains Best Management Practices (BMP's) which are separated into Foundational BMP's and Programmatic BMP's. Table 6-1 in the Plan presents CMWD's status in complying with each of the applicable BMP's.

Coordination - The Plan was coordinated with the San Diego County Water Authority to incorporate imported water supplies, and present information regarding future groundwater, surface water, and recycled water supplies available to CMWD. Staff also contacted agencies responsible for the existing and potential sources of recycled water, including Vallecitos Water District, Leucadia Wastewater District, and the Encina Wastewater Authority (EWA). Finally, notifications of the Plan were submitted to numerous agencies such as the County of San Diego, see Exhibit 2, and copies were placed at the City of Carlsbad's Faraday Center, 1635 Faraday Avenue; at the Carlsbad City Libraries; at the Carlsbad City Clerk's Office, and on the City of Carlsbad's website at www.carlsbadca.gov two weeks before the public hearing

ENVIRONMENTAL IMPACT:

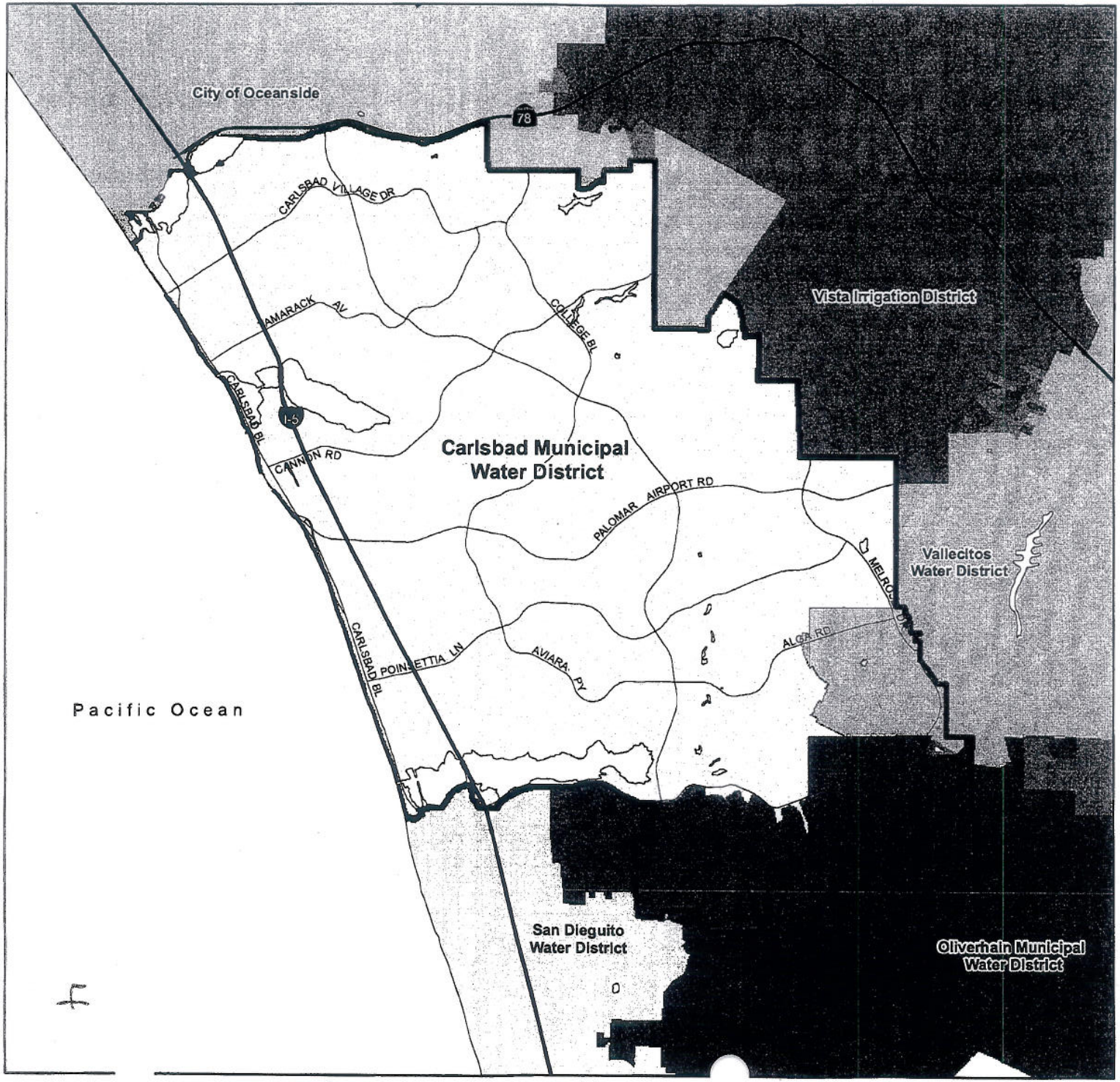
The project is exempt from the California Environmental Quality Act (CEQA) per State CEQA Guidelines section 15282 (v) – The preparation and adoption of Urban Water Management Plans pursuant to the provisions of section 10652 of the Water Code.

FISCAL IMPACT:

The Urban Water Management Plan has no financial impact. However, the projects and policies that may evolve from its findings will have a financial impact. These impacts will be disclosed and handled as projects or policies are implemented.

EXHIBITS:

1. CMWD Study Area Map.
2. Notification List for CMWD's 2010 Urban Water Management Plan.
3. Resolution No. 1419 to hold a public hearing and approve the 2010 Urban Water Management Plan for Carlsbad Municipal Water District.
4. 2010 Urban Water Management Plan for Carlsbad Municipal Water District



LEGEND

Agency Boundaries for Water Service

- NONE
- Carlsbad Municipal Water District
- City of Oceanside
- Olivenhain Municipal Water District
- San Dieguito Water District
- Vallecitos Water District
- Vista Irrigation District
- Water_Boundary
- Carlsbad City Limits

Other

- Freeway
- Major Roads
- Water Bodies

N

0 6,000

Feet

EXHIBIT 1
Study Area

Carlsbad Municipal Water District

EXHIBIT 2 - 2010 URBAN WATER MANAGEMENT PLAN NOTIFICATION LIST

City of Carlsbad	Don Neu	City of Carlsbad Planning Department 1635 Faraday Drive Carlsbad, CA 92008	760-602-4601 760-602-8560 fax Don.Neu@carlsbadca.gov
	David De Cordova	City of Carlsbad Planning Department 1635 Faraday Drive Carlsbad, CA 92008	760-602-4604 760-602-8560 fax david.decordova@carlsbadca.gov
City of Encinitas	Patrick Murphy	City of Encinitas Community Dev. Dept. 505 S. Vulcan Avenue Encinitas, CA 92024-3633	760-633-2696 760-633-2818 fax pmurphy@ci.encinitas.ca.us
City of Oceanside	Jerry Hittleman	City of Oceanside Planning Department 300 N. Coast Highway Oceanside, CA 92054	760-435-3535 760-754-2958 fax jhittleman@ci.oceanside.ca.us
City of San Marcos	Jerry Backoff	City of San Marcos Planning Department 1 Civic Center Drive San Marcos, CA 92069-2949	760-744-1050 x3234 760-591-4135 fax jbackoff@ci.san-marcos.ca.us
	Karen Brindley Shelley Glennon	City of San Marcos Planning Department 1 Civic Center Drive San Marcos, CA 92069-2949	760-744-1050 x3220 760-591-4135 fax kbrindley@ci.san-marcos.ca.us
City of Vista	John Conley	Vista Community Development Department 200 Civic Center Drive Vista, CA 92084	760-639-6100 760-639-6101 fax jconley@cityofvista.com
	Patsy Chow	Vista Community Development Department 200 Civic Center Drive Vista, CA 92084	760-639-6100 760-639-6101 fax pchow@cityofvista.com

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County of San Diego	Eric Gibson	County Dept. of Planning and Land Use Mail Station 0650 5201-B Ruffin Road San Diego, CA 92123	858-694-2962 858-694-2555 fax eric.gibson@sdcounty.ca.gov
	Devon Muto	County Dept. of Planning and Land Use Mail Station 0650 5201-B Ruffin Road San Diego, CA 92123	858-694-3016 858-694-3373 fax devon.muto@sdcounty.ca.gov
	Nelson Olivas	County of San Diego 5569 Kearny Villa Road San Diego, CA 92123	
San Diego County Water Authority	Dana Friehauf Kelley Gage Tim Bombardier	San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123	858-522-6749 858-268-7881 fax dfriehauf@sdcwa.org
San Diego Association of Governments	Charles "Muggs" Stoll Department Director	SANDAG 401 B Street, Suite 800 San Diego, CA 92101 (or Mail Station 980)	619-699-6945 619-699-1905 fax mst@sandag.org
San Diego LAFCO	Ingrid Hansen Chief, Governmental Services	1600 Pacific Highway, Room 452 San Diego, CA 92101	619-531-5400

CITY OF CARLSBAD

MUNICIPAL WATER DISTRICT

SPECIAL MEETING AGENDA

JUNE 7, 2011

6:00 P.M.

CALL TO ORDER:

ROLL CALL:

APPROVAL OF MINUTES:
Minutes of the Special Meeting held May 24, 2011.

PUBLIC HEARING:

16. AB #734 – 2010 URBAN WATER MANAGEMENT PLAN.
    To consider receiving comments from the public and approving the 2010 Urban Water Management Plan for the Carlsbad Municipal Water District.
    Resolution No. 1419.
    ACTION:

DEPARTMENTAL AND EXECUTIVE MANAGER REPORT:

17. AB #735 –IMPORTED WATER COSTS UPDATE.
    To receive a presentation on the cost of imported water from a representative from the San Diego County Water Authority (SDCWA).
    ACTION:

ADJOURNMENT TO THE JOINT SPECIAL MEETING OF THE CITY COUNCIL AND HOUSING AND REDEVELOPMENT COMMISSION

MINUTES

SPECIAL MEETING OF:	**CITY OF CARLSBAD MUNICIPAL WATER DISTRICT (Special Meeting)**
DATE OF MEETING:	**June 7, 2011.**
TIME OF MEETING:	**6:00 p.m.**
PLACE OF MEETING:	**City Council Chambers, 1200 Carlsbad Village Drive, Carlsbad, CA 92008**

CALL TO ORDER: President Hall called the Meeting to order at 6:44 p.m.

ROLL CALL was taken by the Secretary as follows:

Present: Board Members Hall, Kulchin, Blackburn, Douglas and Packard.
Absent: None.

APPROVAL OF MINUTES:

On a motion by Vice President Kulchin, the Minutes of the following meeting were unanimously approved as presented:

Minutes of the Special Meeting held May 24, 2011.

President Hall moved Item #17 to the beginning of the agenda.

DEPARTMENTAL AND EXECUTIVE MANAGER REPORT:

17. AB #735 – IMPORTED WATER COSTS UPDATE

Utilities Director Glen Pruim introduced San Diego Water Authority Assistant Manager Dennis Cushman who presented the Power Point presentation, on file in the office of the City Clerk.

PUBLIC HEARING:

16. AB #734 – URBAN WATER MANAGEMENT PLAN

Deputy City Engineer Bill Plummer and Paul Seisky gave the staff report and Power Point presentation, on file in the office of the City Clerk.

President Hall opened the duly noticed Public Hearing at 7:41 p.m.

Seeing no-one wished to speak, President Hall closed the Public Hearing at 7:41 p.m.

ACTION: On a motion by Vice President Kulchin, the Board adopted **RESOLUTION NO. 1419**, approving the 2010 Urban Water Management Plan for the Carlsbad Municipal Water District.

AYES: Hall, Kulchin, Blackburn, Douglas and Packard.
NOES: None.
ABSENT: None.

ADJOURNMENT:

By proper motion, the Special Meeting of June 7, 2011 was adjourned at 7:42 p.m.

Donna Heraty

DONNA HERATY
Deputy Secretary

Appendix B: Adopted Resolution

Exhibit 3

RESOLUTION NO. 1419

A RESOLUTION OF THE BOARD OF DIRECTORS OF CARLSBAD MUNICIPAL WATER DISTRICT, CALIFORNIA, TO HOLD A PUBLIC HEARING AND APPROVE THE 2010 URBAN WATER MANAGEMENT PLAN FOR CARLSBAD MUNICIPAL WATER DISTRICT

WHEREAS, the 2010 Urban Water Management Plan ("Plan") has been prepared by the Carlsbad Municipal Water District ("CMWD") in conformance with the Urban Water Management Planning Act contained in California Water Code ("Code") Sections 10610 et. Seq.; and

WHEREAS, Section 10642 of the Code requires that prior to adopting a Plan, a urban water supplier shall make the Plan available for public inspection and hold a public hearing to receive public comment regarding the Plan; and

WHEREAS, the CMWD has made copies of the Plan available for review at the City of Carlsbad's Faraday Center, 1635 Faraday Avenue; at the Carlsbad City Libraries located at 1250 Carlsbad Village Drive and 1775 Dove Lane; at the City Clerk's Office, 1200 Carlsbad Village Drive and on the City of Carlsbad's website at www.carlsbadca.gov. A copy of the published Notice of Public Hearing is included in Appendix A of the Plan; and

WHEREAS, a public hearing was held on this day to receive public comment regarding the Plan and the Plan was amended as directed.

NOW, THEREFORE, BE IT RESOLVED by the Board of the Carlsbad Municipal Water District, California, as follows:

1. That the above recitations are true and correct.

2. That the Board approves the 2010 Urban Water Management Plan for Carlsbad Municipal Water District.

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///

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PASSED, APPROVED AND ADOPTED at a Special Meeting of the Board of Directors of the Carlsbad Municipal Water District of the City of Carlsbad the 7th day of June 2011, by the following vote to wit:

AYES: Board Members Hall, Kulchin, Blackburn, Douglas, Packard.

NOES: None.

ABSENT: None.

MATT HALL, President

ATTEST:

LORRAINE M. WOOD, Secretary
(SEAL)

CARLSBAD MUNICIPAL WATER DISTRICT
ORGANIZED MAR. 22, 1954
CALIFORNIA

Appendix C: BMP Activity Reports

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carsbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Base Year Data

Link to FAQs

Reporting Unit Base Year

What is your reporting period? Calendar

Base Year 2008

BMP 1.3 Metering

Number of unmetered accounts in Base Year 0

BMP 3.1 & BMP 3.2 & BMP 3.3 Residential Programs

Number of Single Family Customers in Base Year 22,961

Number of Multi Family Units in Base Year 1,008

BMP 3.4 WaterSense Specification (WSS) Toilets

Number of Single Family Housing Units constructed prior to 1992 18026

Number of Multi Family Units prior to 1992 8803

Average number of toilets per single family household 1.7

Average number of toilets per multi family household 2.16

Five year average resale rate of single family households 4.49

Five-year average resale rate of multi family households 7.44

Average number of persons per single family household 2.52

Average number of persons per multi family household 2.05

BMP 4.0 & BMP 5.0 CII & Landscape

Total water use (in Acre Feet) by CII accounts 3857.6

Number of accounts with dedicated irrigation meters 968

Number of CII accounts without meters or with Mixed Use Meters 0

Number of CII accounts 1,487

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

WATER SOURCES

2009

Service Area Population: 88,945

Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
San Diego County Water Authority	18,070.90	Other	Imported
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Exported Water Name	AF/YEAR	Where Exported?

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Water Uses 2009

Potable Water Billed

Make sure to enter numbers in AF/Year.

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Single-Family	22,886.00	8,800.50			
Multi-Family	1,015.00	1,767.50			
Commercial	2,406.00	3,166.30			
Dedicated Irrigation	911.00	2,556.60			
Other	81.00	4,159.50			Temporary Potable
Agricultural	38.00	514.30			
Other					
Other					
Other					
Other					
Other					
Other					
Other					

Potable Water Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

2009

Service Area Population: 88,945

Non- Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	If you select Other for type, enter Water Supply Description
All Recycled Sources	3,866.80	Recycled Non Potable	Recycled
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	

Exported Water Name	AF/YEAR	Where Exported? such as groundwater recharge, retail,

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Water Uses 2009

Non-Potable Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other	622.00	3,866.80			Recycled
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

Non-Potable Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2009

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator (•) Yes ( ) No

Contact Information

First Name	Mario
Last Name	Remillard
Title	Conservation Coordinator
Phone	760-438-2722
Email	mario.remillard@carlsbadca.gov

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

Water Waste Prevention

Water Agency shall do one or more of the following:

a. Enact and enforce an ordinance or establish terms of service that prohibit water waste
b. Enact and enforce an ordinance or establish terms of service for water efficient design in new development
c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list: http://www.carlsbadca.gov/services/departments/water/Pages/default.aspx

Enter a description: CARLSBAD MUNICIPAL WATER DISTRICT ORDINANCE 44: ADOPTION OF A DROUGHT RESPONSE PLAN AND WATER CONSERVATION PROGRAM ORDINANCE AND REPEALING CMWD ORDINANCE NO. 35.

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

View MOU

2009 BMP 1.2 Water Loss Control

Did your agency complete a pre-screening system audit in 2009? Yes (●) No ( )

If yes, answer the following:

Determine metered sales in AF: 18,427.81

Definition: other accountable uses not included in metered sales, such as unbilled water use, fire suppression, etc.

Determine system verifiable uses AF:

Determine total supply into the system in AF: 19,867.10

Does your agency keep necessary data on file to verify the answers above? Yes (●) No ( )

Did your agency complete a full-scale system water audit during 2009? Yes ( ) No (●)

Does your agency maintain in-house records of audit results or the completed AWWA worksheet for the completed audit which could be forwarded to CUWCC? Yes ( ) No (●)

Did your agency operate a system leak detection program? Yes ( ) No (●)

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? ○ Yes ◉ No

If YES, has your agency completed a meter retrofit plan? ○ Yes ○ No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? ◉ Yes ○ No

Are all new service connections being billed volumetrically? ◉ Yes ○ No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? ○ Yes ◉ No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Single-Family	22,886	22,886	22,886	Monthly	0
Multi-Family	1,015	1,015	1,015	Monthly	0
Commericial	2,406	2,406	2,406	Monthly	0
Dedicated Irrigatic	911	911	911	Monthly	0
Other	703	703	703	Monthly	0
Agricultural	38	38	38	Monthly	0
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters: 0

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period: 0

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? ○ Yes ◉ No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Email or provide a link to the feasibility study (or description of):

File name(s): Email files to natalie@cuwcc.org Enter the file name here e.g. WaterWastePreventionOrdinanc

Web address(s) URL: comma-separated list Enter the URL to your documentation.

General Comments about BMP 1.3:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

View MOU

BMP 1.4 Retail Conservation Pricing

2009

If you are reporting more rate structures than this form allows, add the structures to a spreadsheet and send the file to natalie@cuwcc.org.

Implementation (Water Rate Structure)

Enter the Water Rate Structures that are assigned to the majority of your customers, by customer class

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Increasing Block		14.464.914.49	4.285.746.87
Increasing Block		2.194.751.44	493.321.05
Uniform		3.920.793.37	810.274.02
Uniform		3.283.635.41	532.396.16
Uniform		1.311.708.56	38.490.49
Uniform		655.861.86	130.206.82
Uniform		4.754.854.80	369.475.60

Implementation Option (Conservation Pricing Option)

- (•) Use Annual Revenue As Reported
- ( ) Use Canadian Water & Wastewater Association Rate Design Model

If CWWA is select, enter the file name and email the spreadsheet to natalie@cuwcc.org

Retail Waste Water (Sewer) Rate Structure by Customer Class

Agency Provide Sewer Service (•) Yes ( ) No

Select the Retail Waste Water(Sewer) Rate Structure assigned to the majority of your customers within a specific customer class.

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Uniform			4.923.641.12
Uniform		1.722.738.58	
Uniform		2.974.484.27	
Select a Rate Struc			
Select a Rate Struc			
Select a Rate Struc			
Select a Rate Struc			

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.1 Public Outreach - Retail Reporting

View MOU

Is a Wholesale Agency Performing Public Outreach?

Are there one or more wholesale agencies performing public outreach which can be counted to help your agency comply with the BMP? (●) Yes ( ) No

Enter the name(s) of the wholesale agency (comma delimited): San Diego County Water Authority

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ☑

Number of Public Contacts	Public Information Programs
12	Newsletter articles on conservation
24	Email Messages
1	Landscape water conservation media campaigns
65	General water conservation information
	Select a public contact

Contact with the Media

Are there one or more wholesale agencies performing media outreach which can be counted to help your agency comply with the BMP? (●) Yes ( ) No

Enter the name(s) of the wholesale agency (comma delimited): San Diego County Water Authority

OR Retail Agency (Contacts with the Media)

Media Contacts List

Did at least one contact take place during each quarter of the reporting year? ☑

Number of Media Contacts	Media Contact Types
17	News releases
77	Articles or stories resulting from outreach
5	Written editorials
1,649	Newspaper contacts
136	Radio contacts
323	Television contacts

Is a Wholesale Agency Performing Website Updates?

Did one or more CUWCC wholesale agencies agree to assume your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? ◉Yes ○No

Enter the name(s) of the wholesale agency (comma delimited)

San Diego County Water Authority

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): www.carlsbadca.gov

Describe a minimum of four water conservation related updates to your agency's website that took place during the year:

1. Updated water saving tips
2. Posted Level 2 Drought Alert Information
3. Prepared FAQ on Water Conservation
4. Added "How to Adjust Spriklers" page.
5. Updated "Free Water Audit and Rebates" page
6. Posted "Save Water at Home Check List"

Did at least one Website Update take place during each quarter of the reporting year? ◉Yes ○No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
Public Outreach	$15,000		☐		
			☐		
			☐		
			☐		
			☐		
			☐		

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

CUWCC

Link to FAQs

2009

BMP 2.1 Public Outreach Cont'd

View MOU

Public Outreach Expenses

Enter expenses for public outreach programs. Please include the same kind of expenses you included in the question related to your budget (Section 2.1.7, above). For example, if you included personnel costs in the budget entered above, be sure to include them here as well.

Expense Category	Expense Amount	Personnel Costs Included?	
Public Outreach	$15,000	☐	If yes, check the check box.
		☐	
		☐	
		☐	

Additional Public Information Program

Please report additional public information contacts. List these additional contacts in order of how your agency views their importance / effectiveness with respect to conserving water, with the most important/ effective listed first (where 1 = most important).

Were there additional Public Outreach efforts? ○ Yes ◉ No

Public Outreach Additional Information

Public Information Programs	Importance

Social Marketing Programs

Branding

Does your agency have a water conservation "brand," "theme" or mascot? ○ Yes ◉ No

Describe the brand, theme or mascot.

Market Research

Have you sponsored or participated in market research to refine your message? ○ Yes ◉ No

Market Research Topic	
Brand Message	
Brand Mission Statement	

Community Committees

Do you have a community conservation committee? ○ Yes ⊙ No

Enter the names of the community committees:

Training

Training Type	# of Trainings	# of Attendees	Description of Other

Social Marketing Expenditures

Public Outreach Social Marketing Expenses

Expense Category	Expense Amount	Description

Partnering Programs - Partners

Name	Type of Program
☐ CLCA?	
☐ Green Building Programs?	
☐ Master Gardeners?	
☐ Cooperative Extension?	
☐ Local Colleges?	
☐ Other	

☐ Retail and wholesale outlet; name(s) and type(s) of programs:

Partnering Programs - Newsletters

Number of newsletters per year

Number of customers per year

Partnering with Other Utilities

Describe other utilities your agency partners with, including electrical utilities

Conservation Gardens

Describe water conservation gardens at your agency or other high traffic areas or new

Agua Hedionda Lagoon Foundation

Landscape contests or awards

Describe water wise landscape contest or awards program conducted by your agency

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

CUWCC

Link to FAQs

2009

BMP 2.2 School Education Programs, Retail Agencies

View MOU

School Programs

Is a wholesale agency implementing school programs which can be counted to help your agency comply with this BMP? ⊙Yes ○No

Enter Wholesaler Names, separated by commas: San Diego County Water Authority

☑ Materials meet state education framework requirements?

Description of Materials: 3rd grade History Video/DVD,5th grade Weather and Water Presentation, 3rd grade Traveling library Presentation.

☑ Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: 3rd grade History Video/DVD,5th grade Weather and Water Presentation, 3rd grade Traveling library Presentation. Xeriscape - Workshop.

Number of students reached: 1,488

☐ Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students:

Number of Distribution:

Annual budget for school education program:

Description of all other water supplier education programs:

School Program Activities

Classroom presentations:

Number of presentations: 14 Number of attendees:

Large group assemblies:

Number of presentations: Number of attendees:

Children's water festivals or other events:

Number of presentations: Number of attendees:

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: Number of attendees:

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description

Number distributed

Staffing children's booths at events & festivals:

Number of booths | Number of attendees

Water conservation contests such as poster and photo:

Description

Number distributed

Offer monetary awards/funding or scholarships to students:

Number Offered | Total Funding

Teacher training workshops:

Number of presentations: 2 | Number of attendees: 2

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips | Number of participants

College internships in water conservation offered:

Number of internships | Total funding

Career fairs/workshops:

Number of presentations | Number of attendees

Additional program(s) supported by agency but not mentioned above:

Description

Number of events (if applicable) | Number of participants

Total reporting period budget expenditures for school education programs (include all agency costs):

Comments

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carsibadca.gov

WATER SOURCES

2010

Service Area Population: 88,945

Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
San Diego County Water Authority	18,070.90	Other	Imported
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Exported Water Name	AF/YEAR	Where Exported?

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Water Uses

2010

Potable Water Billed

Make sure to enter numbers in AF/Year.

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Single-Family	22,886.00	8,800.50			
Multi-Family	1,015.00	1,767.50			
Commercial	2,406.00	3,166.30			
Dedicated Irrigation	911.00	2,556.60			
Other	81.00	4,159.50			Temporary Potable
Agricultural	38.00	514.30			
Other					
Other					
Other					
Other					
Other					
Other					
Other					

Potable Water Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

2010

Service Area Population: 88,945

Non- Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	If you select Other for type, enter Water Supply Description
All Recycled Sources	3,866.80	Recycled Non Potable	Recycled
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	

Exported Water Name	AF/YEAR	Where Exported? such as groundwater recharge, retail,

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Division name (Reporting unit): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

Water Uses 2010

Non-Potable Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other	622.00	3,866.80			Recycled
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

Non-Potable Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator ◯ Yes ◯ No

Contact Information

First Name	Mario
Last Name	Remillard
Title	Conservation Coordinator
Phone	760-438-2722
Email	mario.remillard@carlsbadca.gov

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

Water Waste Prevention

Water Agency shall do one or more of the following:

a. Enact and enforce an ordinance or establish terms of service that prohibit water waste
b. Enact and enforce an ordinance or establish terms of service for water efficient design in new development
c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list: http://www.carlsbadca.gov/services/departments/water/Pages/default.aspx

Enter a description: CARLSBAD MUNICIPAL WATER DISTRICT ORDINANCE 44: ADOPTION OF A DROUGHT RESPONSE PLAN AND WATER CONSERVATION PROGRAM ORDINANCE AND REPEALING CMWD ORDINANCE NO. 35.

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010 BMP 1.2 Water Loss Control

View MOU

AWWA Water Audit

Agency to complete a Water Audit & Balance Using The AWWA Software ⊙ Yes ○ No

Email to natalie@cuwcc.org - Worksheets (AWWA Water Audit). Enter the name of the file below:

Water Audit Validity Score from AWWA spreadsheet

Agency Completed Training In The AWWA Water Audit Method ⊙ Yes ○ No

Agency Completed Training In The Component Analysis Process ○ Yes ⊙ No

Completed/Updated the Component Analysis (at least every 4 years)? ○ Yes ⊙ No

Component Analysis Completed/Updated Date

Water Loss Performance

Agency Repaired All Reported Leaks & Breaks To The Extent Cost Effective ⊙ Yes ○ No

Recording Keeping Requirements:

Date/Time Leak Reported	Leak Location
Type of Leaking Pipe Segment or Fitting	Leak Running Time From Report to Repair
Leak Volume Estimate	Cost of Repair

Agency Located and Repaired Unreported Leaks to the Extent Cost Effective ○ Yes ⊙ No

Type of Program Activities Used to Detect Unreported Leaks

Annual Summary Information

Complete the following table with annual summary information (required for reporting years 2-5 only)

Total Leaks Repaired	Economic Value Of Real Loss	Economic Value Of Apparent Loss	Miles Of System Surveyed For Leaks	Pressure Reduction Undertaken for loss reduction	Cost Of Interventions	Water Saved (AF/Year)

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity 2010

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? Yes No

If YES, has your agency completed a meter retrofit plan? Yes No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? Yes No

Are all new service connections being billed volumetrically? Yes No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? Yes No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Single-Family	22,886	22,886	22,886	Monthly	0
Multi-Family	1,015	1,015	1,015	Monthly	0
Commericial	2,406	2,406	2,406	Monthly	0
Dedicated Irrigatio	911	911	911	Monthly	0
Other	703	703	703	Monthly	0
Agricultural	38	38	38	Monthly	0
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters: 0

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period: 0

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Describe, upload or provide an electronic link to the Feasibility Study Upload File

File name(s): Email files to natalie@cuwcc.org Enter the file name here e.g. WaterWastePreventionOrdinanc

Web address(s) URL: comma-separated list Enter the URL to your documentation.

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carslbadca.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

CUWCC 2010

BMP 1.4 Retail Conservation Pricing

Link to FAQs

View MOU

If you are reporting more rate structures than this form allows, add the structures to a spreadsheet and send the file to natalie@cuwcc.org.

Implementation (Water Rate Structure)

Enter the Water Rate Structures that are assigned to the majority of your customers, by customer class

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Increasing Block		14,464,914.49	4,285,746.87
Increasing Block		2,194,751.44	493,321.05
Uniform		3,920,793.37	810,274.02
Uniform		3,283,635.41	532,396.16
Uniform		1,311,708.56	38,490.49
Uniform		655,861.86	130,206.82
Uniform		4,754,854.80	369,475.60

Implementation Option (Conservation Pricing Option)

- ○ Use Annual Revenue As Reported
- ○ Use Canadian Water & Wastewater Association Rate Design Model

If CWWA is select, enter the file name and email the spreadsheet to natalie@cuwcc.org

Retail Waste Water (Sewer) Rate Structure by Customer Class

Agency Provide Sewer Service ○ Yes ○ No

Select the Retail Waste Water(Sewer) Rate Structure assigned to the majority of your customers within a specific customer class.

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Uniform			4,923,641.12
Uniform		1,722,738.58	
Uniform		2,974,484.27	
Select a Rate Struct			
Select a Rate Struct			
Select a Rate Struct			
Select a Rate Struct			

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.1 Public Outreach - Retail Reporting

View MOU

Is a Wholesale Agency Performing Public Outreach?

Are there one or more wholesale agencies performing public outreach which can be counted to help your agency comply with the BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited): San Diego County Water Authority

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ☑

Number of Public Contacts	Public Information Programs
12	Newsletter articles on conservation
24	Email Messages
1	Newsletter articles on conservation
65	General water conservation information
	Select a public contact

Contact with the Media

Are there one or more wholesale agencies performing media outreach which can be counted to help your agency comply with the BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited): San Diego County Water Authority

OR Retail Agency (Contacts with the Media)

Media Contacts List

Did at least one contact take place during each quarter of the reporting year? ☑

Number of Media Contacts	Media Contact Types
17	News releases
77	Articles or stories resulting from outreach
5	Written editorials
1,649	Newspaper contacts
136	Radio contacts
323	Television contacts

Is a Wholesale Agency Performing Website Updates?

Did one or more CUWCC wholesale agencies agree to assume your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? ○Yes ○No

Enter the name(s) of the wholesale agency (comma delimited)

San Diego County Water Authority

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): www.carlsbadca.gov

Describe a minimum of four water conservation related updates to your agency's website that took place during the year:

1. Updated water saving tips
2. Posted Level 2 Drought Alert Information
3. Prepared FAQ on Water Conservation
4. Added "How to Adjust Spriklers" page.
5. Updated "Free Water Audit and Rebates" page
6. Posted "Save Water at Home Check List"

Did at least one Website Update take place during each quarter of the reporting year? ○Yes ○No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
Public Outreach	$15,000		☐		
			☐		
			☐		
			☐		
			☐		
			☐		

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.1 Public Outreach Cont'd

View MOU

Public Outreach Expenses

Enter expenses for public outreach programs. Please include the same kind of expenses you included in the question related to your budget (Section 2.1.7, above). For example, if you included personnel costs in the budget entered above, be sure to include them here as well.

Expense Category	Expense Amount	Personnel Costs Included?
Public Outreach	$15,000	☐ If yes, check the check box.
		☐
		☐
		☐

Additional Public Information Program

Please report additional public information contacts. List these additional contacts in order of how your agency views their importance / effectiveness with respect to conserving water, with the most important/ effective listed first (where 1 = most important).

Were there additional Public Outreach efforts? ○ Yes ○ No

Public Outreach Additional Information

Public Information Programs	Importance

Social Marketing Programs

Branding

Does your agency have a water conservation "brand," "theme" or mascot? ○ Yes ○ No

Describe the brand, theme or mascot.

Market Research

Have you sponsored or participated in market research to refine your message? ○ Yes ○ No

Market Research Topic	
Brand Message	
Brand Mission Statement	

Community Committees

Do you have a community conservation committee? ○ Yes ○ No

Enter the names of the community committees:

Training

Training Type	# of Trainings	# of Attendees	Description of Other

Social Marketing Expenditures

Public Outreach Social Marketing Expenses

Expense Category	Expense Amount	Description

Partnering Programs - Partners

Name	Type of Program
☐ CLCA?	
☐ Green Building Programs?	
☐ Master Gardeners?	
☐ Cooperative Extension?	
☐ Local Colleges?	
☐ Other	

☐ Retail and wholesale outlet; name(s) and type(s) of programs:

Partnering Programs - Newsletters

Number of newsletters per year

Number of customers per year

Partnering with Other Utilities

Describe other utilities your agency partners with, including electrical utilities

Conservation Gardens

Describe water conservation gardens at your agency or other high traffic areas or new

Agua Hedionda Lagoon Foundation

Landscape contests or awards

Describe water wise landscape contest or awards program conducted by your agency

Comments:

The fields in red are required.

Agency name: Carlsbad Municipal Water District

Reporting unit name (District name): Carlsbad Municipal Water District

Reporting unit number: 6996

Primary contact:

First name: Mario

Last name: Remillard

Email: mario.remillard@carlsbadca.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.2 School Education Programs, Retail Agencies

View MOU

School Programs

Is a wholesale agency implementing school programs which can be counted to help your agency comply with this BMP? ○Yes ○No

Enter Wholesaler Names, separated by commas: San Diego County Water Authority

☑ Materials meet state education framework requirements?

Description of Materials: 3rd grade History Video/DVD,5th grade Weather and Water Presentation, 3rd grade Traveling library Presentation.

☑ Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: 3rd grade History Video/DVD,5th grade Weather and Water Presentation, 3rd grade Traveling library Presentation. Xeriscape - Workshop.

Number of students reached: 1,488

☐ Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students:

Number of Distribution:

Annual budget for school education program:

Description of all other water supplier education programs:

School Program Activities

Classroom presentations:

Number of presentations: 14 Number of attendees:

Large group assemblies:

Number of presentations: Number of attendees:

Children's water festivals or other events:

Number of presentations: Number of attendees:

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: Number of attendees:

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description

Number distributed

Staffing children's booths at events & festivals:

Number of booths | Number of attendees

Water conservation contests such as poster and photo:

Description

Number distributed

Offer monetary awards/funding or scholarships to students:

Number Offered | Total Funding

Teacher training workshops:

Number of presentations: 2 | Number of attendees: 2

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips | Number of participants

College internships in water conservation offered:

Number of internships | Total funding

Career fairs/workshops:

Number of presentations | Number of attendees

Additional program(s) supported by agency but not mentioned above:

Description

Number of events (if applicable) | Number of participants

Total reporting period budget expenditures for school education programs (include all agency costs):

Comments

Appendix D: Ordinance No. 44

Exhibit 1

ORDINANCE NO. 44

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE CARLSBAD MUNICIPAL WATER DISTRICT ADOPTING A DROUGHT RESPONSE PLAN AND WATER CONSERVATION PROGRAM AND REPEALING ORDINANCE NO 35

WHEREAS, article 10, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, conservation of current water supplies and minimization of the effects of water supply shortages that are the result of drought are essential to the public health, safety and welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, design of rates, method of application of water for certain uses, installation and use of water-saving devices, provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. authorize water suppliers to adopt and enforce a comprehensive water conservation program; and

WHEREAS, adoption and enforcement of a comprehensive water conservation program will allow the Carlsbad Municipal Water District (CMWD) to delay or avoid implementing measures such as water rationing or more restrictive water use regulations pursuant to a declared water shortage emergency as authorized by California Water Code sections 350 et seq.; and

WHEREAS, San Diego County is a semi-arid region and local water resources are scarce. The region is dependent upon imported water supplies provided by the San Diego County Water Authority, which obtains a substantial portion of its supplies from the Metropolitan Water District of Southern California. Because the region is dependent upon imported water supplies, weather and other conditions in other portions of this State and of the Southwestern United States affect the availability of water for use in San Diego County; and

WHEREAS, the San Diego County Water Authority has adopted an Urban Water Management Plan that includes water conservation as a necessary and effective component of

the Water Authority's programs to provide a reliable supply of water to meet the needs of the Water Authority's 24 member public agencies, including the CMWD. The Water Authority's Urban Water Management Plan also includes a contingency analysis of actions to be taken in response to water supply shortages. This ordinance is consistent with the Water Authority's Urban Water Management Plan; and

WHEREAS, as anticipated by its Urban Water Management Plan, the San Diego County Water Authority, in cooperation and consultation with its member public agencies, has adopted a Drought Management Plan, which establishes a progressive program for responding to water supply limitations resulting from drought conditions. This ordinance is intended to be consistent with and to implement the Water Authority's Drought Management Plan; and

WHEREAS, the Water Authority's Drought Management Plan contains three stages containing regional actions to be taken to lessen or avoid supply shortages. This ordinance contains drought response levels that correspond with the Drought Management Plan stages; and

WHEREAS, the CMWD, due to the geographic and climatic conditions within its territory and its dependence upon water imported and provided by the San Diego County Water Authority, may experience shortages due to drought conditions, regulatory restrictions enacted upon imported supplies and other factors. The Board of Directors of CMWD has adopted an Urban Water Management Plan that includes water conservation as a necessary and effective component of its programs to provide a reliable supply of water to meet the needs of the public within its service territory. The CMWD's Urban Water Management Plan also includes a contingency analysis of actions to be taken in response to water supply shortages. This ordinance is consistent with the Urban Water Management Plan adopted by the Board of Directors of CMWD; and

WHEREAS the water conservation measures and progressive restrictions on water use and method of use identified by this ordinance provide certainty to water users and enable CMWD to control water use, provide water supplies, and plan and implement water management measures in a fair and orderly manner for the benefit of the public;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Carlsbad Municipal Water District of the City of Carlsbad, California, as follows:

1. That the above recitations are true and correct.

2. The Board of Directors of the Carlsbad Municipal Water District of the City of Carlsbad, California, hereby ordains as follows:

SECTION 1.0 DECLARATION OF NECESSITY AND INTENT

(a) This ordinance establishes water management requirements necessary to conserve water, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, prevent unreasonable use of water, prevent unreasonable method of use of water within the CMWD in order to assure adequate supplies of water to meet the needs of the public, and further the public health, safety, and welfare, recognizing that water is a scarce natural resource that requires careful management not only in times of drought, but at all times.

(b) This ordinance establishes regulations to be implemented during times of declared water shortages, or declared water shortage emergencies. It establishes four levels of drought response actions to be implemented in times of shortage, with increasing restrictions on water use in response to worsening drought conditions and decreasing available supplies.

(c) Level 1 condition drought response measures are voluntary and will be reinforced through local and regional public education and awareness measures that may be funded in part by CMWD.

(d) During drought response condition Levels 2 through 4, all conservation measures and water-use restrictions are mandatory and become increasingly restrictive in order to attain escalating conservation goals.

SECTION 2.0 DEFINITIONS

(a) The following words and phrases whenever used in this chapter shall have the meaning defined in this section:

1. "Grower" refers to those engaged in the growing or raising, in conformity with recognized practices of husbandry, for the purpose of commerce, trade, or industry, or for use by public educational or correctional institutions, of agricultural, horticultural or floricultural products, and produced: (1) for human consumption or for the market, or (2) for the feeding of fowl or livestock produced for human consumption or for the market, or (3) for the feeding of fowl or livestock for the purpose of obtaining their products for human consumption or for the market. "Grower" does not refer to customers who purchase water subject to the Metropolitan Interim Agricultural Water Program or the Water Authority Special Agricultural Rate programs.

2. "Water Authority" or "CWA" means the San Diego County Water Authority.

3. "DMP" means the Water Authority's Drought Management Plan in existence on the effective date of this ordinance and as readopted or amended from time to time, or an equivalent plan of the Water Authority to manage or allocate supplies during shortages.

4. "Metropolitan" or "MWD" means the Metropolitan Water District of Southern California.

5. "Person" means any natural person, corporation, public or private entity, public or private association, public or private agency, government agency or institution, school district, college, university, or any other user of water provided by the CMWD.

6. "District" or "CMWD" means the Carlsbad Municipal Water District.

SECTION 3.0 WATER WASTE PROHIBITIONS

The following water conservation measures will be in effect at all times:

1. Washing down impervious surfaces, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios with water from a pressurized source, such as a garden hose, except when it is necessary to alleviate safety or sanitation hazards. When used in this section impervious surface means any surface covered with non-porous material.

2. Water waste resulting from inefficient landscape irrigation, such as runoff, low head drainage, or overspray, etc. is prohibited. Water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures is prohibited.

3. Use a hand-held hose equipped with a positive shut-off nozzle or bucket to water landscaped areas, including trees and shrubs located on residential and commercial properties that are not irrigated by a landscape irrigation system.

4. Use re-circulated water to operate ornamental fountains.

5. Wash vehicles using a bucket and a hand-held hose with positive shut-off nozzle or a mobile high pressure/low volume wash system.

6. Serve and refill water in restaurants and other food service establishments only upon request.

7. Offer guests in hotels, motels, and other commercial lodging establishments the option of not laundering towels and linens daily.

8. Use recycled or non-potable water for construction purposes when available.

9. Single pass-through cooling systems as part of new water service connections will be prohibited. Non-recirculating systems in all new conveyer car wash and commercial laundry systems will also be prohibited.

10. The excess use, loss or escape of water through breaks, leaks or other, malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water could have reasonably been discovered and corrected.

SECTION 4.0 APPLICATION

(a) The provisions of this ordinance apply to any person in the use of any water provided by the CMWD.

(b) This ordinance is intended solely to further the conservation of water. It is not intended to

implement any provision of federal, State, or local statutes, ordinances, or regulations relating to protection of water quality or control of drainage or runoff. Refer to the local jurisdiction or Regional Water Quality Control Board for information on any stormwater ordinances and stormwater management plans.

(c) Nothing in this ordinance is intended to affect or limit the ability of the CMWD to declare and respond to an emergency, including an emergency that affects the ability of the CMWD to supply water.

(d) The provisions of this ordinance do not apply to use of water from private wells or to recycled water.

(e) Nothing in this ordinance shall apply to use of water that is subject to a special supply program, such as the Metropolitan Interim Agricultural Water Program or the Water Authority Special Agricultural Rate programs. Violations of the conditions of special supply programs are subject to the penalties established under the applicable program. A person using water subject to a special supply program and other water provided by the CMWD is subject to this ordinance in the use of the other water.

SECTION 5.0 AUTHORIZATION

The District General Manager, or a designated representative, is hereby authorized and directed to implement the provisions of this ordinance.

SECTION 6.0 DROUGHT RESPONSE LEVEL 1 – DROUGHT WATCH CONDITION

(a) A Drought Response Level 1 condition is also referred to as a "Drought Watch" condition. A Level 1 condition may apply when the Water Authority notifies its member agencies that due to drought or other supply reductions, there is a reasonable probability there will be supply shortages and that a consumer demand reduction of up to 10 percent is required in order to ensure that sufficient supplies will be available to meet anticipated demands. The Executive Manager upon recommendation of the General Manager shall declare the existence of a Drought Response Level 1 and take action to implement the Level 1 conservation practices identified in this ordinance.

(b) During a Level 1 Drought Watch condition, CMWD will increase its public education and outreach efforts to emphasize increased public awareness of the need to implement the following water conservation practices.

1. Irrigate residential and commercial landscape before 10 a.m. and after 6 p.m. only.

2. Irrigate nursery and commercial grower's products before 10 a.m. and after 6 p.m. only. Watering is permitted at any time with a hand-held hose equipped with a positive shut-off nozzle, a bucket, or when a drip/micro-irrigation system/equipment is used. Irrigation of nursery propagation beds is permitted at any time. Watering of livestock is permitted at any time.

3. Repair all water leaks within five (5) days of notification by the CMWD unless other arrangements are made with the General Manager or Designee.

SECTION 7.0 DROUGHT RESPONSE LEVEL 2 – DROUGHT ALERT CONDITION

(a) A Drought Response Level 2 condition is also referred to as a "Drought Alert" condition. A Level 2 condition may apply when the Water Authority notifies its member agencies that due to

cutbacks caused by drought or other reduction in supplies, a consumer demand reduction of up to 20 percent is required in order to have sufficient supplies available to meet anticipated demands. The CMWD Board of Directors shall declare the existence of a Drought Response Level 2 condition and implement the mandatory Level 2 conservation measures identified in this ordinance.

(b) All persons using CMWD water shall comply with Level 1 Drought Watch water conservation practices during a Level 2 Drought Alert, and shall also comply with the following additional conservation measures:

1. Limit residential and commercial landscape irrigation to no more than three (3) assigned days per week on a schedule established by the General Manager and posted by the CMWD. During the months of November through May, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the CMWD. This section shall not apply to commercial growers or nurseries.

2. Limit lawn watering and landscape irrigation using sprinklers to no more than ten (10) minutes per watering station per assigned day. This provision does not apply to landscape irrigation systems using water efficient devices, including but not limited to: weather based controllers, drip/micro-irrigation systems and stream rotor sprinklers.

3. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system governed by section 5 (b) (1), on the same schedule set forth in section 5 (b) (1) by using a bucket, hand-held hose with positive shut-off nozzle, or low-volume non-spray irrigation.

4. Repair all leaks within seventy-two (72) hours of notification by the CMWD unless other arrangements are made with the General Manager or Designee.

5. Stop operating ornamental fountains or similar decorative water features unless recycled water is used.

SECTION 8.0 DROUGHT RESPONSE LEVEL 3 – DROUGHT CRITICAL CONDITION

(a) A Drought Response Level 3 condition is also referred to as a "Drought Critical" condition. A Level 3 condition may apply when the Water Authority notifies its member agencies that due to increasing cutbacks caused by drought or other reduction of supplies, a consumer demand reduction of up to 40 percent is required in order to have sufficient supplies available to meet anticipated demands. The CMWD Board of Directors shall declare the existence of a Drought Response Level 3 condition and implement the Level 3 conservation measures identified in this ordinance.

(b) All persons using CMWD water shall comply with Level 1 Drought Watch and Level 2 Drought Alert water conservation practices during a Level 3 Drought Critical condition and shall also comply with the following additional mandatory conservation measures:

1. Limit residential and commercial landscape irrigation to no more than two (2) assigned days per week on a schedule established by the General Manager and posted by the CMWD. During the months of November through May, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the CMWD.

2. Limit lawn watering and landscape irrigation using sprinklers to no more than ten (10) minutes per watering station per assigned day. This section shall not apply to commercial growers or nurseries.

3. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system governed by section 6 (b) (1), on the same schedule set forth in section 6 (b) (1) by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation.

4. Stop filling or re-filling ornamental lakes or ponds, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a drought response level under this ordinance.

5. Stop washing vehicles except at commercial carwashes that re-circulate water, or by high pressure/low volume wash systems.

6. Repair all leaks within forty-eight (48) hours of notification by the CMWD unless other arrangements are made with the General Manager or Designee.

(c) Upon the declaration of a Drought Response Level 3 condition, no new potable water service shall be provided, no new temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide potable water service (such as, will serve letters, certificates, or letters of availability) shall be issued, except under the following circumstances:

1. A valid, unexpired building permit has been issued for the project; or

2. The project is necessary to protect the public's health, safety, and welfare; or

3. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s).

This provision shall not be construed to preclude the resetting or turn-on of meters to provide continuation of water service or to restore service that has been interrupted for a period of one year or less.

(d) Upon the declaration of a Drought Response Level 3 condition, the Board of Directors of CMWD will suspend consideration of annexations to its service area.

(e) The Board of Directors of CMWD may establish a water allocation for property served by the CMWD taking into consideration a method that does not penalize persons for the implementation of conservation methods or the installation of water saving devices. If the Board of Directors of CMWD establishes a water allocation notice of the allocation shall be provided by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the CMWD customarily mails the billing statement for fees or charges for on-going water service. Following the effective date of the water allocation as established by the Board of Directors of CMWD, any person that uses water in excess of the allocation shall be subject to a penalty in the amount equal to the penalty rate established by the Metropolitan Water District for each billing unit of water in excess of the allocation. The penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of this ordinance.

SECTION 9.0 DROUGHT RESPONSE LEVEL 4 – DROUGHT EMERGENCY CONDITION

(a) A Drought Response Level 4 condition is also referred to as a "Drought Emergency" condition. A Level 4 condition may apply when the Water Authority Board of Directors declares a water shortage emergency pursuant to California Water Code section 350 and notifies its member agencies that Level 4 requires a demand reduction of more than 40 percent in order for the CMWD to have maximum supplies available to meet anticipated demands. The CMWD Board of Directors shall declare a Drought Emergency in the manner and on the grounds provided in California Water Code section 350.

(b) All persons using CMWD water shall comply with conservation measures required during Level 1 Drought Watch, Level 2 Drought Alert, and Level 3 Drought Critical conditions and shall also comply with the following additional mandatory conservation measures:

1. Stop all landscape irrigation, except crops and landscape products of commercial growers and nurseries. This restriction shall not apply to the following categories of use unless the CMWD has determined that recycled water is available and may be lawfully applied to the use.

A. Maintenance of trees and shrubs that are watered on the same schedule set forth in section 6 (b) (1) by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation;

B. Maintenance of existing landscaping necessary for fire protection as specified by the Fire Marshal of the local fire protection agency having jurisdiction over the property to be irrigated;

C. Maintenance of existing landscaping for erosion control;

D. Maintenance of plant materials identified to be rare or essential to the well being of rare animals;

E. Maintenance of landscaping within active public parks and playing fields, day care centers, school grounds, cemeteries, and golf course greens, provided that such irrigation does not exceed two (2) days per week according to the schedule established under section 6 (b) (1);

F. Watering of livestock; and

G. Public works projects and actively irrigated environmental mitigation projects.

2. Repair all water leaks within twenty-four (24) hours of notification by the CMWD unless other arrangements are made with the General Manager or Designee.

3. The District may install a flow restricting device for services of up to one and one-half inch (1-1/2") size and comparatively sized restrictors for larger services upon a prior determination that the customer has repeatedly violated the provisions of this Ordinance and that such action is reasonably necessary to assure compliance with this ordinance.

Any willful tampering with or removal of any flow restriction devise may result in termination of service for a period to be determined in writing by the General Manager.

Prior to any restoration of service, the customer may pay all District charges for any restriction of service and its restoration as provided for in the District's rules governing water service.

(c) The CMWD may establish a water allocation for property served by the CMWD. If the CMWD establishes a water allocation it shall provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the CMWD customarily mails the billing statement for fees or charges for on-going water service. Following the effective date of the water allocation as established by the CMWD, any person that uses water in excess of the allocation shall be subject to a penalty in the amount equal to the penalty rate established by the Metropolitan Water District for each billing unit of water in excess of the allocation. The penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of this ordinance.

SECTION 10.0 CORRELATION BETWEEN DROUGHT MANAGEMENT PLAN AND DROUGHT RESPONSE LEVELS

(a) The correlation between the Water Authority's DMP stages and the CMWD's drought response levels identified in this ordinance is described herein. Under DMP Stage 1, the CMWD may implement Drought Response Level 1 actions. Under DMP Stage 2, the CMWD may implement Drought Response Level 1 or Level 2 actions. Under DMP Stage 3, the CMWD may implement Drought Response Level 2, Level 3, or Level 4 actions.

(b) The drought response levels identified in this ordinance correspond with the Water Authority DMP as identified in the following table:

Drought Response Levels	Use Restrictions	Conservation Target	DMP Stage
1 - Drought Watch	Voluntary	Up to 10%	Stage 1 or 2
2 - Drought Alert	Mandatory	Up to 20%	Stage 2 or 3
3 - Drought Critical	Mandatory	Up to 40%	Stage 3
4 - Drought Emergency	Mandatory	Above 40%	Stage 3

SECTION 11.0 PROCEDURES FOR DETERMINATION AND NOTICATION OF DROUGHT RESPONSE LEVEL

(a) The existence of a Drought Watch condition may be declared by the Executive Manager upon a written determination of the existence of the facts and circumstances supporting the determination. A copy of the written determination shall be filed with the Secretary of the CMWD and provided to the CMWD Board of Directors. The CMWD may publish a notice of the determination of existence of Drought Response Level 1 condition in one or more newspapers, including a newspaper of general circulation within the CMWD. The CMWD may also post notice of the condition on their website.

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(b) The existence of Drought Response Level 2 or Level 3 conditions may be declared by resolution of the CMWD Board of Directors adopted at a regular or special public meeting held in accordance with State law. The mandatory conservation measures applicable to Drought Response Level 2 or Level 3 conditions shall take effect on the tenth (10) day after the date the response level is declared. Within five (5) days following the declaration of the response level, the CMWD shall publish a copy of the resolution in a newspaper used for publication of official notices.

(c) The existence of a Drought Response Level 4 condition may be declared in accordance with the procedures specified in California Water Code sections 351 and 352. The mandatory conservation measures applicable to Drought Response Level 4 conditions shall take effect on the tenth (10) day after the date the response level is declared. Within five (5) days following the declaration of the response level, the CMWD shall publish a copy of the resolution in a newspaper used for publication of official notices. If the CMWD establishes a water allocation, it shall provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the CMWD customarily mails the billing statement for fees or charges for on-going water service. Water allocation shall be effective on the fifth (5) day following the date of mailing or at such later date as specified in the notice.

(d) The CMWD Board of Directors may declare an end to a Drought Response Level by the adoption of a resolution at any regular or special meeting held in accordance with State law.

SECTION 12.0 HARDSHIP VARIANCE

(a) If, due to unique circumstances, a specific requirement of this ordinance would result in undue hardship to a person using agency water or to property upon which agency water is used, that is disproportionate to the impacts to CMWD water users generally or to similar property or classes of water uses, then the person may apply for a variance to the requirements as provided in this section.

(b) The variance may be granted or conditionally granted, only upon a written finding of the existence of facts demonstrating an undue hardship to a person using agency water or to property upon with agency water is used, that is disproportionate to the impacts to CMWD water users generally or to similar property or classes of water use due to specific and unique circumstances of the user or the user's property.

1. Application. Application for a variance shall be a form prescribed by the General Manager of the CMWD and shall be accompanied by a non-refundable processing fee in an amount set by resolution of the CMWD Board of Directors.

2. Supporting Documentation. The application shall be accompanied by photographs, maps, drawings, and other information, including a written statement of the applicant.

3. Required Findings for Variance. An application for a variance shall be denied unless the General Manager finds, based on the information provided in the application, supporting documents, or such additional information as may be requested, and on water use information for the property as shown by the records of the CMWD, all of the following:

A. That the variance does not constitute a grant of special privilege inconsistent with the limitations upon other CMWD customers.

B. That because of special circumstances applicable to the person, property or its use, the strict application of this ordinance would have a disproportionate impact on the person, property or use that exceeds the impacts to customers generally.

C. That the authorizing of such variance will not be of substantial detriment to adjacent properties, and will not materially affect the ability of the CMWD to effectuate the purpose of this chapter and will not be detrimental to the public interest.

D. That the condition or situation of the subject person, property or the intended use of the property for which the variance is sought is not common, recurrent or general in nature.

4. Approval Authority. The General Manager or Designee shall exercise approval authority and act upon any completed application no later than 10 days after submittal and may approve, conditionally approve, or deny the variance. The applicant requesting the variance shall be promptly notified in writing of any action taken. Unless specified otherwise at the time a variance is approved, the variance applies to the subject property during the term of the mandatory drought response.

5. Appeals to CMWD Executive Manager or Designee(s). An applicant may appeal a decision or condition of the General Manager on a variance application to the CMWD Executive Manager or Designee(s) within 10 days of the decision upon written request for a hearing. The request shall state the grounds for the appeal. At the appeal hearing, the CMWD Executive Manager or Designee(s) shall act as the approval authority and review the appeal de novo by following the regular variance procedure. The decision of the CMWD Executive Manager or Designee(s) is final.

SECTION 13.0 VIOLATIONS AND PENALTIES

(a) Any person, who uses, causes to be used, or permits the use of water in violation of this ordinance is guilty of an offense punishable as provided herein.

(b) Each day that a violation of this ordinance occurs is a separate offense.

(c) Administrative fines may be levied for each violation of a provision of this ordinance as follows:

1. For the first violation by any customer of any of the provisions of this Ordinance the District shall verbally notice the fact of such violation to the customer.

2. For a second violation by any customer of any of the provisions of this Ordinance the District shall issue a written notice of the fact of such violation to the customer.

3. For a third violation by a customer of any provision of this Ordinance the District may install a flow restricting device of one gallon per minute (1 GPM) capacity for services of up to one and one-half inch (1-1/2") size and comparatively sized restrictors for larger services upon a prior determination that the customer has repeatedly violated the provisions of this Ordinance regarding the conservation of water and that such action is reasonably necessary to assure compliance with this Ordinance regarding the conservation of water. In addition, the District may levy an administrative fine of one hundred dollars.

4. Two hundred dollars for a fourth violation of any provision of this ordinance within one year.

5. Five hundred dollars for each additional violation of this ordinance within one year.

(d) If determined by General Counsel to be necessary and appropriate, in lieu of administrative remedies above, each violation of this ordinance may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding $1,000, or by both as provided in Water Code section 377.

(e) Willful violations of the mandatory conservation measures and water use restrictions as set forth in Section 7.0 and applicable during a Stage 4 Drought Emergency condition may be enforced by discontinuing service to the property at which the violation occurs as provided by Water Code section 356.

(f) All remedies provided for herein shall be cumulative and not exclusive.

(g) Any customer against whom a penalty is levied pursuant to this section shall have the right to appeal as follows:

1. The request must be in writing and received by the General Manager within ten (10) calendar days of the mailing of the notice of the action to the customer. Any determination not timely appealed shall be final. The written request shall include:

A. a description of the issue,
B. evidence supporting the claim, and
C. a request for resolution of the dispute.

The General Manager will review the material submitted and make an indepedent determination of the issue, which shall be mailed out within fifteen (15) calendar days of receipt of the appeal.

2. The General Manager's determination may be appealed in writing within ten (10) calendar days of the mailing of the notice of determination to the Board of Directors of the CMWD by filing with the Secretary of the CMWD a written notice of such appeal. The Secretary shall set the matter for a hearing before the Board of Directors at an upcoming Board meeting. Notice of the hearing shall be mailed out at least ten (10) calendar days prior to the date of the appeal. The Board may, in its discretion, affirm, reverse or modify the determination.

3. Fees for filing an appeal under this section shall be established by a resolution of the Board of Directors of the CMWD.

SECTION 14.0 REPEAL OF ORDINANCE NO. 35

Ordinance No. 35 of the Carlsbad Municipal Water District relating to the Necessity for and Adopting a Drought Response Conservation Program is hereby repealed in its entirety.

SECTION 15.0 EFFECTIVE DATE

This ordinance is effective immediately upon adoption.

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INTRODUCED AND FIRST READ at a Special Meeting of the Carlsbad Municipal Water District Board on the 16th day of December, 2008, and thereafter.

PASSED, APPROVED AND ADOPTED at a Special Meeting of the Carlsbad Municipal Water District Board, on the 6th day of January, 2009, by the following vote to wit:

AYES: Board Members Lewis, Kulchin, Hall, Packard and Blackburn.

NOES: None.

ABSENT: None.

ABSTAIN: None.

APPROVED AS TO FORM AND LEGALITY

RONALD R. BALL, General Counsel
1-6-09

CLAUDE A. LEWIS, President

ATTEST:

LORRAINE M. WOOD, Secretary

(SEAL)

CARLSBAD MUNICIPAL WATER DISTRICT
ORGANIZED MAR. 22, 1954
CALIFORNIA

Appendix E: Water Shortage Contingency Plan

Water Shortage Contingency Plan

In January 2009, CMWD's Board of Directors adopted Ordinance No. 44 which included the Drought Response Plan and Water Conservation Program. This replaced a previous Ordinance No. 35 which included the Urban Water Shortage Contingency Plan. As part of the Drought Response Plan, CMWD adopted Ordinance No. 35, *An Ordinance of the Carlsbad Municipal Water District Finding the Necessity For and Adopting a Water Conservation Program*. Since CMWD is dependent upon the SDCWA for its water supply, the SDCWA's 2010 Urban Water Management Plan should be consulted for their water shortage contingency plan.

Emergency response stage actions become effective when SDCWA declares that it is unable to provide sufficient water supplies to meet the ordinary demands and requirements of its member agencies without depleting available water supplies, to the extent that insufficient water would be available for human consumption, sanitation and fire protection. When SDCWA announces its stage declaration, the District concurrently would declare its corresponding stage.

Stages of Action

The ordinance outlines four drought response stages, as shown in Table E-1.

Table E-1. Rationing Stages to Address Water Supply Shortages

Stage	Water Supply Conditions	Percent shortage
Level 1 – Drought Watch Condition	Reasonable probability that supplies will not meet demands	0-10%
Level 2 – Drought Alert Condition	Supplies will not be able to meet expected demands	11-20%
Level 3 – Drought Critical Condition	Supplies not meeting current demands	21-40%
Level 4 – Drought Emergency Condition	Major failure of a supply, storage, or distribution system	40% and up

DWR Table 35

Catastrophic Supply Interruption Plan

As shown in Table E-2, CMWD has taken several actions for preparation of and implementation during a catastrophic interruption of water supplies.

Table E-2. Preparation Actions for a Catastrophe	
Possible Catastrophe	Summary of Actions
☐ Earthquake ☐ Fire/explosion ☐ Medical ☐ Flood ☐ Tornado/severe weather ☐ Bomb threat ☐ Hard freeze ☐ Loss of normal water supply ☐ Hazardous material release ☐ Contamination of District water supplies ☐ Terrorist attack	Command chain is defined that dispatches crews to inspect infrastructure and critical operations. Operations response crews assigned to monitor system operations and modify as necessary. Communication command chain is defined to coordinate with other local water agencies and emergency response officials as necessary. Criteria and procedures provided to return system to normal operations including initiating water quality testing when necessary and performing necessary emergency repairs to the system. Plan contains contact information for responsible parties and support services. Water shortage contingency plan stages will be implemented as required by the situation.

Prohibitions, Consumption Reduction Methods, and Penalties

Mandatory and voluntary prohibitions, consumption reduction methods, and penalties are presented in Tables E-3 to E-5. The reduction in water use that would occur from each of the reduction methods is not estimated. As specific stages are implemented, CMWD would closely monitor projected supply availability and demand. Depending on these projections, the methods presented in Table E-4 would be enacted and enforced to achive the desired reductions in water use.

Table E-3. Mandatory Prohibitions		
Prohibitions	Level When Prohibition is Voluntarily Requested	Level When Prohibition Becomes Mandatory
Street/sidewalk cleaning	1	3
Washing cars	1	3
Watering lawns/landscapes	1	3
Uncorrected plumbing leaks	1	2
Gutter flooding	1	2

DWR Table 36

Table E-4. Consumption Reduction Methods		
Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction, Percent
Demand reduction program	Level 1	
Flow restriction		
Mandatory percentage reduction		
Restrict for only priority uses	Level 4	
Use prohibitions	Levels 2 and 3 See Table E-3.	
Water shortage pricing		
Education program	Level 1	
Voluntary rationing	Level 1	
Mandatory rationing	Level 4	

DWR Table 37

Table E-5. Penalties and Charges	
Examples of Penalties and Charges	Stage When Penalty Takes Effect
Warning letter	All stages
Administrative citations	All stages
Notice of violation	All stages
Service of water discontinued	All stages

DWR Table 38

Description of Revenue and Expenditure Impacts

In the event that revenues are less than required to meet CMWD's financial obligations as a result of a water shortage, the CMWD would borrow from its Water Replacement Fund and then propose increasing water rates to appropriate levels for the Board's consideration. The Water Replacement Fund is maintained at adequate levels to provide short-term capital in case of emergencies as well as provide funding for replacement of depreciated facilities such as pipelines.

In the event of a water emergency, Ordinance No. 44 would be activated to respond to the level of shortage. At that time, drought response stage actions would go into effect and CMWD would be operating with reduced water sales. The amount of decreased revenue would depend upon the response stage under which CMWD would operate.

Tables E-6 and E-7 present how different actions and conditions impact revenues and expenditures.

Table E-6. How Actions and Conditions Impact Revenues

Type	Anticipated Revenue Impact
Rate adjustment	No impact. This would be an administrative function to analyze rate structure options to offset potential losses in revenue associated with reduced sales.
Change in quantity of sales	A reduction in water deliveries would result in a reduction in revenue expenses. The associated reduction in quantity charge based revenues generated to cover local O & M costs would be offset by a combination of budget reductions, expense deferrals, including some non-critical CIP projects, draws on rate stabilization and operating reserves, and rate adjustments.

Table E-7. How Actions and Conditions Impact Expenditures

Type	Anticipated Expenditure Impact
Change in quantity of sales	The reduction in sales could be offset with rate and budget adjustments and moderate CIP deferrals.
Increased staff/salaries/overtime	None- existing staff would be re-assigned to perform functions required to implement and enforce mandatory use provisions and rate features needed to reduce consumption.
Increased costs of new supplies, transfers or exchanges	New supplies would be secured by the wholesale supplier and the cost would be melded into the overall cost. The increased cost of wholesale water to secure additional supplies would be passed through to CMWD's customers.

Methods to mitigate revenue and expenditure impacts are presented in Tables E-8 and E-9.

Table E-8. Proposed Measures to Overcome Revenue Impacts	
Name of Measures	Summary of Effects
Reserve Fund	This option would have no impact on the rate payers or CMWD as there are currently sufficient funds in the Water Replacement Fund.
Change rate structure	Changes in rates to offset significant reductions in available water supplies would be minimal.
Reduce overhead	Overhead, or local fixed O & M costs, can be reduced in the short and mid-term by deferring selected cash-funded CIP and major maintenance projects, other expenditure reductions and if needed, hiring freezes.
Decrease capital expenditures	Deferral of selected, non-critical replacement projects will have little or no impact on CMWD or its customers, and would only extend the duration of the master planned replacement schedule. Infrastructure for new development is funded by new development and progresses at the rate needed by new development projects.
Revise planning estimates	If supply reduction were long-term, CMWD would make commensurate adjustments to its CIP schedule, staffing levels and retail rate structures based upon lower retail sales. Impacts would be moderate and implemented over time.

Table E-9. Proposed Measures to Overcome Expenditure Impacts	
Name of Measures	Summary of Effects
Reserve Fund	No impact- The Replacement Fund exists and is sufficient for the very purposes anticipated in a supply shortage scenario.
Change rate structure	Given the mix of wholesale water and power expenditure, non-commodity revenues needed to cover local fixed costs, availability of reserves and the flexibility to adjust CIP expenditures, short–term (1 to 2 year) impacts would be non-existent to negligible, mid-term (3 years) impacts would be moderate, and long-term (beyond three year) impacts would be moderate and incremental.
Reduce overhead	In the short-term and mid-term, over-head, or local costs can be reduced by deferring non-critical CIP and major maintenance expenditures, and in the long-term by adjusting operational and staffing levels and retail water rate structures to incorporate the reality of lower retail water sales than previously anticipated.
Decrease capital expenditures	In the short-term, there could be a decrease in the level or, if need be, even a total interruption in the expenditures for CMWD's replacement program. In the mid, to long term, adjustments would be to the retail rate structure and to the prioritization schedule to ensure that projects critical to service and system reliability were implemented
Revise planning estimates	If the reduced supply is determined to be a long-term condition, then commensurate adjustments would be incorporated into long-term staffing and water system facility requirements.

Reduction Measuring Mechanisms

The mechanisms needed to determine actual water reductions operate on an ongoing basis. All water received from the SDCWA is metered and monitored. Additionally, all CMWD customers are metered and billed monthly with computerized equipment. Each customer or customer group can be evaluated as to compliance with conservation requirements. Methods used by the CMWD to determine actual reductions in water use are summarized in Table E-10.

Table E-10. Reduction Measuring Mechanisms	
Mechanism for Determining Actual Reduction	Type and Quality of Data Expected
Use normalized or average water use baseline to determine reductions	Each customer will be given a schedule of monthly use targets based upon the required reduction compared to the base period usage. Usage over the amount allocated for any given month will result in the customer incurring penalty pricing for usage that month. Usage under that amount will be accumulated to possible offset over-usage in successive month period.
More frequent review of production	Water production is currently monitored on a real-time basis through CMWD's SCADA system, and reviewed on a daily basis.
More frequent meter reading at customer locations	Customer meters are read on a monthly basis which would coincide with the monthly allocation periods. Customers are given information on how to read their meter and monitor their own usage.
More frequent leak detection and repair	Leak detection and repair is currently an active and ongoing O&M function, so no major changes would be expected.
System audit	The water system is currently audited on a monthly and annual basis, comparing metered deliveries from the SDCWA to metered deliveries to retail customers.
Automated sensors and telemetry	CMWD has a SCADA system, which contains features to provide real-time monitoring and alarms communications to on-call operators for identify abnormalities in reservoir fill rates, draw-down rates, and pump function, which can be associated system leaks and other malfunctions that could result in water loss.
Monitor utility actions	All CMWD actions are monitored and reported in a comprehensive Activities Report provided to the Board of Directors on an annual basis. Other types of staff reports on CMWD activities are given at the two regular Board Meeting each month or on as needed basis by the Executive Manager.
Penalties for customers	If and when penalty pricing were implemented, the amount and frequency of penalties would be monitored by the City of Carlsbad's computerized billing system and then reported to the management staff and to the Board of Directors on a monthly basis.

Appendix F: Urban Water Management Plan Checklist

Table F-1. Urban Water Management Plan checklist, organized by legislation number

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)	System Demands		Section 3.3
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	System Demands		Section 1.3
3	Report progress in meeting urban water use targets using the standardized form.	10608.40	Not applicable	Standardized form not yet available	
4	Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)	Plan Preparation		Section 1.2
5	An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.	10620(f)	Water Supply Reliability . . .		Section 1.4
6	Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.	10621(b)	Plan Preparation		Section 1.3

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
7	The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).	10621(c)	Plan Preparation		
8	Describe the service area of the supplier	10631(a)	System Description		Section 2.1
9	(Describe the service area) climate	10631(a)	System Description		Section 2.2
10	(Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . .	10631(a)	System Description		Section 3.1
11	. . . (population projections) shall be in five-year increments to 20 years or as far as data is available.	10631(a)	System Description		Section 3.1
12	Describe . . . other demographic factors affecting the supplier's water management planning	10631(a)	System Description		Section 3.1
13	Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).	10631(b)	System Supplies	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 4.3 – groundwater Section 4.2 – surface water Section 4.6 - Desalination Section 5 – recycled water
14	(Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .?	10631(b)	System Supplies	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 4.3 Not applicable

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
15	(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management. Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)	System Supplies		Not applicable
16	(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.	10631(b)(2)	System Supplies		Not applicable
17	For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board	10631(b)(2)	System Supplies		Not applicable
18	(Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.	10631(b)(2)	System Supplies		Not applicable
19	For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.	10631(b)(2)	System Supplies		Not applicable
20	(Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(3)	System Supplies		Section 2.3
21	(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(4)	System Supplies	Provide projections for 2015, 2020, 2025, and 2030.	Not applicable

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) An average water year, (B) A single dry water year, (C) Multiple dry water years.	10631(c)(1)	Water Supply Reliability . . .		Sections 4.8 and 4.9
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)	Water Supply Reliability . . .		Section 4.9
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)	System Supplies		Section 4.6
25	Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof;(I) Agricultural.	10631(e)(1)	System Demands	Consider “past” to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 3.2

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
26	(Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) Water survey programs for single-family residential and multifamily residential customers; (B) Residential plumbing retrofit; (C) System water audits, leak detection, and repair; (D) Metering with commodity rates for all new connections and retrofit of existing connections; (E) Large landscape conservation programs and incentives; (F) High-efficiency washing machine rebate programs; (G) Public information programs; (H) School education programs; (I) Conservation programs for commercial, industrial, and institutional accounts; (J) Wholesale agency programs; (K) Conservation pricing; (L) Water conservation coordinator; (M) Water waste prohibition;(N) Residential ultra-low-flush toilet replacement programs.	10631(f)(1)	DMMs	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 6 Appendix C (2009/2010 BMP reports)
27	A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.	10631(f)(3)	DMMs		Appendix C (2009/2010 BMP reports)
28	An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.	10631(f)(4)	DMMs		Appendix C (2009/2010 BMP reports)

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
29	An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.	10631(g)	DMMs	See 10631(g) for additional wording.	Appendix C (2009/2010 BMP reports)
30	(Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.	10631(h)	Water Supplies		Section 4.5

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
31	Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.	10631(i)	Water Supplies		Section 4.4
32	Include the annual reports submitted to meet the Section 6.2 requirement (of the MOU), if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	DMMs	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	Appendix C (2009/2010 BMP reports)
33	Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).	10631(k)	System Demands	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 4.8
34	The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)	System Demands		Section 3.2.8
35	Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.	10632(a)	Water Supply Reliability . . .		Appendix E
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)	Water Supply Reliability . . .		Section 4.8

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
37	(Identify) actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)	Water Supply Reliability . . .		Section 4.9 and Appendix E
38	(Identify) additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)	Water Supply Reliability . . .		Appendix E
39	(Specify) consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)	Water Supply Reliability . . .		Appendix E
40	(Indicated) penalties or charges for excessive use, where applicable.	10632(f)	Water Supply Reliability . . .		Appendix E
41	An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)	Water Supply Reliability . . .		Appendix E
42	(Provide) a draft water shortage contingency resolution or ordinance.	10632(h)	Water Supply Reliability . . .		Appendix D
43	(Indicate) a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)	Water Supply Reliability . . .		Appendix E
44	Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area	10633	System Supplies		Chapter 5

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
45	(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)	System Supplies		Section 5.1
46	(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)	System Supplies		Sections 5.1 and 5.2
47	(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)	System Supplies		Section 5.2
48	(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)	System Supplies		Section 5.2
49	(Describe) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.	10633(e)	System Supplies		Section 5.2
50	(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)	System Supplies		Section 5.3
51	(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)	System Supplies		Section 5.3

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
52	The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.	10634	Water Supply Reliability . . .	For years 2010, 2015, 2020, 2025, and 2030	Section 4.10
53	Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)	Water Supply Reliability . . .		Chapter 7 (Sections 7.1.1, 7.1.2, 7.1.3)
54	The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.	10635(b)	Plan Preparation		Section 1.3
55	Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642	Plan Preparation		Section 1.3

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
56	Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.	10642	Plan Preparation		Section 1.3
57	After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	10642	Plan Preparation		Section 1.3
58	An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.	10643	Plan Preparation		Section 1.3
59	An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.	10644(a)	Plan Preparation		Section 1.3
60	Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.	10645	Plan Preparation		Section 1.3

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.